

F* You! Mr. President: Confessions of the Father of the Neutron Bomb**

3rd Edition

**Featuring a New Overview and Postscript Chapter,
“The Profits of Fear” by Charles Platt**

Sam Cohen



© 1996-2006 by Sam Cohen, Los Angeles; All rights reserved for all media.

Statement of Permission to Copy in Full

I am the sole and unencumbered copyright holder of my book "Shame: Confessions of the Father of the Neutron Bomb".

I hereby authorize Conrad Schneiker to produce a 2005 edition of this book in electronic form, for purposes of him making it available on the Internet for free.

This edition shall carry this "Statement of Permission to Copy in Full" prominently on the copyright page.

Other people are hereby authorized to make and distribute electronic copies of this book for free, subject to the condition that this book is reproduced in its entirety, with no modification of content.

This does not preclude other people from optionally charging for making and/or distributing likewise complete and unaltered copies of this book, optionally in other forms, such as printed books, audio books, and Braille books. (Illustrations and indices may be omitted in the exclusive cases of non-visual media.)



Sam Cohen

6/9/05

Date

A copy of this book may be found at:

http://www.AthenaLab.com/Confessions_Sam_Cohen_2006_Third_Edition.pdf

This third edition of Sam Cohen's memoirs (with Sam's requested change of title, and Charles Platt's new chapter) supersedes the previously released second edition. Among other changes, the second edition had all the previously deleted expletives restored, and had many typographical corrections. The old first (printed) edition of "Shame" is obsolete.

By the way, I want to be on record for urging Sam to consider a more moderate change of title.

Note about major Adobe Acrobat PDF bug: Despite having purchased Acrobat specifically for the purpose of accurately converting MS Word documents, it still alters the layout and thus messes up the page numbering for the *Index* (even with accessibility-related reflow explicitly turned off, among a variety of other attempted workarounds). Their advertising seems quite deceptive for failing to mention this very important deficiency. You can still make interpolation-guesses since the errors are approximately proportional to how far into the book the references are, or do searches in copies of the PDF file.

To Conrad Schneiker and Arp,
my true and devoted friends.

Technical Editor's Notes

It's very rare for any single book to really stand out in terms of many crucially important *unvarnished* first-hand historical 'reality checks'. Sam Cohen's book *Shame* is one of those few remarkable exceptions. The principle themes and characteristics of Sam's book are:

1. It's an inspiring story of dogged triumph over considerable childhood psychological torment and medical adversity.
2. It's a remarkable story of *recognizing the right problem to solve*, versus merely reinventing bigger conventional weapons in new technologies. The neutron bomb aimed at *reducing the civilian slaughter* that now characterizes large-scale war—conventional and otherwise. It makes the morally crucial and counterintuitive case that *the neutron bomb is the most moral weapon ever invented*, and is thus the best type of nuclear bomb ever invented. (Keep in mind the *prior actual and continuing dependence* on monster stockpiles of *inherently indiscriminate* civilian-slaughtering—and *civilian life-support infrastructure* destroying—city-obliterating bombs.)
3. It's a one-man American *Perestroika* and *Glasnost* movement, which honestly shows how many high-profile credit-mongering "Cold Warriors" and Cold War institutions were generally groups of cynical political opportunists who actually (and often knowingly) undermined real national security in their greedy lust for power, glory, and profit.
4. It's to the foreign policy, national security, and military-industrial establishments what Feynman's myth-shattering activities were to NASA's phony Challenger 'investigation' (doublespeak for 'cover-up'). It's an amazing chronicle of how a handful of remarkable people can *sometimes* prevail over enormously larger institutional packs of political animals dominated by self-serving groupthink. It puts on record the sort of 'real world' bureaucratic skullduggery that others will generally only speak about off the record, and often only after swearing you to secrecy.
5. It shows why George Washington's foreign policy advice—far from being allegedly obsolete—is actually becoming increasingly more important with proliferating advances in smaller and more powerful weapons.

Contents

Introduction	7
1. Childhood and Life Before The Bomb.....	11
2. Winning The War At Los Alamos.....	21
3. The Commies Are Coming.....	35
4. Through The Neutron Looking Glass	123
5. So Nu?	207
6. Shame.....	259
7. Overview and Postscript: The Profits of Fear (Charles Platt).....	263
7.1 Prologue: Nuclear News on Route 66	263
7.2 The Drama	263
7.3 The Most Moral weapon.....	267
7.4 A Nuke by Any Other Name	268
7.5 What's a Neutron?	270
7.6 Warfare as a Biological Function	272
7.7 The Global Consequences of Child Abuse	273
7.8 The Problem of Selling Sam.....	276
7.9 The Profits of Fear	277
7.10 Epilogue: An Exercise in Futility	280
Bibliography	281
Index	283

Introduction

All crystal balls are very, very cloudy. What we do know is that, barring divine intervention, human beings will remain human and this includes those involved in the formulation and implementation of US national security policies, especially nuclear weapon policies. As for those who have impacted on the evolution of U.S. nuclear policies, I have met, known and worked with a great many of them. As military men, in defending their profession and the their arsenals, are prone to say “Men make war, not weapons.” True, and they also make policies that lead to or — rather less often — avoid war. Our policies, which since World War II have gotten us into war after war — none of them successful or in our true interests — have remained the same. I have the gravest concerns that they will lead to still more wars whose consequences may seriously threaten our survival. These policies must be changed to keep us out of wars abroad and to be able to defend ourselves, at home. Unless this happens, I truly fear for our country.

Historical scholars, ever since ancient times, have been tracing through and analyzing momentous eras in the course of human events. In recent years a number of them have applied themselves to the nuclear weapons era which, as I write seems to be coming to an end insofar as these weapons threatening mankind’s survival. All signs point to very large reductions in the arsenals of the United States and what used to be called the Soviet Union and with the apparent end of the Cold War, a large-scale nuclear war, with its devastating consequences and possibilities for the “Doomsday” scenario now seems remote. Not that currently non-nuclear countries won’t be clandestinely developing, buying, or even stealing nuclear warheads and means to deliver them; this probably can’t be stopped. That they might use these weapons in anger, this probably can’t be stopped. On the other hand, those countries that now possess nuclear stockpiles show increasing signs of being able to avoid their use. One could say, and I would concur, that the outlook for mankind’s survival has never looked better since the Nuclear Age began.

What all this portends, I don’t pretend to know; nor does anyone else for that matter.

Most of this book will be about my own personal experiences with those involved with the development and policy formulation for nuclear weapons. Having spent some forty or so years observing these people close at hand, nuclear weapons was my profession, I’ll be relating my experiences with and my opinions about them. For it was their collective behavior as human beings, not intellectual giants, as many of them were, which produced the evolvement of our policies. I’ll be telling tales about them, ranging from flattering to scurrilous, to show how these policies came about. As for our nuclear policies, what I’ll have to say will be mainly scurrilous, mainly because they’ve been divorced from human realities, which among other things involve going to war time after time. As for the people mainly responsible for the policies, I’ll be mainly scurrilous about them too, for they were people who thought they had a God-given ability to know the unknowable. At best, their behavior was hallucinatory; at worse they were just crooks and liars.

Of course, there were others, many others, who were just plain decent dedicated people, as I saw them, who dealt with nuclear weapons in one way or another and were interesting, even fascinating, enough to warrant attention here. As for myself, and I have no reservations in stating that I've had a major impact on our nuclear policy formulation process, I'll have some not too flattering comments about my own sweet behavior. Unlike Sigmund Freud, however, I'm not capable of analyzing myself from inside. As an outsider, in hearing me out, you can pass your own judgment on me.

When I was in college, my philosophy professor quoted another, very famous, philosopher, Alfred North Whitehead, as having said that most things people do what they do for reasons they don't understand. They do so for reasons dictated by their unconscious, which practically none of us understand. I include myself in this category, certainly with respect to my relationships with people. With respect to my professional behavior, especially inventing the neutron bomb, I think I have some understanding of what's been going on in my psyche. I'll be letting you in on this. (I was in college against my will, for I would rather have been a gravedigger, which I was for a while until my boss fired me because he didn't want me to wind up like him.)

As a variation on Whitehead's belief, there's the opinion of an old military acquaintance of mine, a true intellectual who just happened to like the Air Force, who had served with the Joint Chiefs of Staff in the Pentagon. While there he conducted an extensive study on the U.S. military decision-making process, with full clearances and access to all the high level sensitive documents, memoranda, meeting transcripts, what have you. He had sifted through all this material, tried to analyze it for logical, or rational, content, and finally arrived at a profound conclusion: Decisions that critically affected, or at least seemed to, the security of our country were arrived at "Because it seemed like a good idea at the time."

If my observations on how we decided to build, deploy and use nuclear weapons have you feeling a little queasy, you should be. If you feel a little terrified, you have good reason to. That such deadly instruments of death and destruction have been in the hands of people who really didn't know what they were up to, never did and still don't, this has to be hard to swallow. However, you must accept the fact that like the rest of us they had a pack of faults (like massive egos that needed massaging; lust, sometimes insatiable, for power; gross intellectual dishonesty; and compulsions for working out neurotic drives they didn't understand and were powerless to resist.) Many, if not most, of them were dedicated Americans who put their country's well-being above their own, even though they rarely stopped to think of how their country regarded its well-being. This is something, which George Bush called the "vision thing", our country, being as diverse as it is, cannot possibly decide upon.

Collectively, like today's politicians, who have all the above-listed vices and failings, you (and I) should want to throw these rascals out. For on balance they have an awful record. The trouble is, however, is that like politicians we can't get rid of them very easily, if at all. They mostly *are* politicians, albeit unelected, who have learned the art of survival. We're stuck with them, I'm afraid, and they will continue to run the show. May God help us, but if your criteria for judging the efficacy of the policies they've been responsible for are based on the avoidance of nuclear war, God has helped us. If your criteria

include other things like terrible failures in non-nuclear war, a degraded economy, and so on, God has ignored us.

Returning to the scholars who have applied themselves to the bombs, the bombers, the strategists, the policy makers, and so on, most of them tend to be academically oriented. Feeling forced to publish or perish, with rare exceptions they are forced to rely on the works and opinions of others; never having experienced first hand what they are writing about. Consequently, because they are compelled to play by the rules, they adhere to the practice of listing sources and their works (or opinions), with all due credit, in the form of footnotes, references, bibliographies and interviews — all of which sometimes rival in length what the author himself has written. Most of this doesn't add up to a hill of beans toward conveying any particular insight into or feeling for the issues, let alone the people involved in them. This may sound unfair to many well-meaning scholars but I believe it's largely true.

Whether they know it or not they have victimized themselves or have been victimized by those they bank on for material. Not everything, especially in the nuclear policy area, they read or hear is necessarily so. For a subject dominated by such great passions and emotions, it usually isn't so.

Okay, so what are they supposed to do? Give up their professorships, or hopes for acceptable doctoral theses, and become gravediggers like I once was — and would happily be again if I was up to it. When it comes to black humor to liven up a lifeless occupation, there's nothing like a standup necrophillic. (Why do they bury people on the side of a hill? Because they're dead. I've got the most important job of anyone in my neighborhood; I've got 20,000 people under me. And we'd all laugh even though we'd heard these jokes time after time.) Of course they won't do any such thing but I'll bet you that many of them wish they could, for a while, to get away from this nonsense which happens to be their livelihood. I bring all this out not so much to ridicule or disparage these scholars, but rather to suggest that their well-intended efforts should be taken for what they're worth — precious little insofar as gaining any real understanding of the issues.

Having said all this, I have to say that there is much that can be said, written and learned about these nuclear issues, other than trying to get a grasp on them by analyzing their history. This is because of two factors: (1) There is a large body of scientific truths that can be brought to bear which, alas, far too many (including far too many "reputable" scientists) have chosen to ignore or distort in the shaping of our nuclear policies; and (2) Although it is not really possible to grasp the human truth of military matters, human beings, in dealing with these matters sometimes can act logically and even, although far less frequently, rationally. Combining these two factors, if concerned people can be honest enough with themselves and spend some time trying to figure out the technical and military aspects of nuclear weapon issues, they can get some glimmerings of what it's all about, but hardly any deep understanding. Then, in the framework of their own perceptions of the world around them and how they view our national objectives, they can more objectively develop opinions. I might say, and you have to believe me that I find it agonizing to say this, in view of my jaundiced and even bitter opinion of the U.S. government, the best way to get the most objective information on these issues is from the U.S. government. As poorly as I rate it, our government is a far better source of such information than the media or academia. However, if they're egotistical enough

to think they can develop answers besides opinions, they should be reminded of what Victor Borge once said: “I used to have a terrible conceit, but I finally stopped that. Now I’m perfect.”

In my opinion, Borge comes as close to being a perfect comedian as they come; his jokes really crack me up. Were, however, he to take an interest in nuclear policy issues, try to understand them, and decide that he did, and then explain them to his audience, this would be the joke of century. I would take days before I stopped laughing.

In what follows, I’ll try to give you some insight into the technical and military aspects of our nuclear policies as they have developed over the years, and I’ll give you my unvarnished opinions of them. I’ll also give you my appraisal, based on a large body of personal experience on how the policies were developed, on where the United States should be going, from a national security standpoint, in the Nuclear Age, which isn’t about to end any time soon and perhaps never will. Mainly, however, lest you get the idea that I’m writing something that can be construed as scholarly (Heaven forbid!), what I intend to do is to write about my life and times, up to the time my professional career was forced to an end: mainly for my pleasure but hopefully for yours. I’ll be reminiscing about a life that on balance I think was pretty interesting. Maybe you’ll agree with me. I’ll try and give you some feeling for some of the players, major and minor, (and, of course, myself included) who have participated in the development of nuclear weapons, in planning for their use, and in formulating the policies governing their use. In my judgment you’ll get a far better feeling for this nuclear business by learning a bit about some of the characters who have been involved in this business, which really is about people — not bombs, bombers, sterile mathematical analyses, and robots, who pretend to be people, who run the business.

Much of what I write will be tempered by the fading memory of an old man in his late seventies who forgets why he decided to go the bathroom and remembers only when nature compels him to. When I’m writing about people and happenings I’ll try to be as truthful as I can. When I’m writing about nuclear weapons, however, for which I still have a great affection, for had they been treated more honestly by those who shaped our nuclear policies they might have made a real contribution to our national security, to say nothing about our national economy, I don’t have to try to be truthful. The truth here is science and science is truth. However, this is all water over the dam, which has left me somewhat scarred, certainly skeptical, but not cynical, although I may sound so. Were I indeed cynical, I’d be off doing something else than writing this book, which, I might say, is what most of my former comrades in nuclear arms are doing. God bless them, they knew when to stop. I didn’t.

Finally, for heavens sake please don’t get the idea that you’re about to read a well ordered and structured tome. Forget it. I will try, somewhat, to be somewhat chronologically orderly. However, as I write, when some episode (or two, or three, or more) comes to mind that doesn’t fit into a time-ordered pattern, I intend to fit it in anyway.

1. Childhood and Life Before The Bomb

When my father was 70 years old he re-embraced God, at least to the point of returning to the synagogue after more than 60 years of professed atheism. Five years later he died, a born-again Jewish believer. He was an impeccably honest man, God rest his soul, wherever it is, and I suspect it's up there with Him.

When he was very young my father also went to the synagogue. This was in London's East End, late in the last century, where poor Jews lived. He went because his father forced him to go. He believed in God because his father forced him to and because he loved his father. When he turned thirteen and became a man, to celebrate the occasion his father took him to a synagogue in the West End where wealthy Jews lived. My father was overwhelmed by the size and opulence of the synagogue. Before anyone could stop him he dashed down the aisle to a seat in front of the altar to take it all in close up. Whereupon he was seized by the ear by an angry attendant who hustled him to the back of the balcony where his mortified father awaited him. There, they observed, at considerable distance, the goings on.

When they left and came home to the family of about ten or so, who slept in a couple of rooms with a slightly larger number of beds, my father demanded an explanation. Why did all God's children not have equal rights in His house? His father attempted to explain the distinction between piety and wealth in London's Jewish community, which my father found unacceptable. In a high dudgeon my father forthwith declared that if there were a God who would countenance such hypocrisy this was not a God he could believe in. And since he saw no alternative at the time, he declared himself an atheist. As a result, I was raised an atheist and have remained so all my life. I've never, in my unabiding and rigid way, held to any particular political spiritual dogma. The only true belief I've ever had was a total dedication to my country's military security, which while sorely tested over the years, when I was in the nuclear weapons business, has stayed with me.

God willing, I'll hang around a while longer and while I'm here and as long as I can, I'll try, as best I can, to do what I think is best for our security — regardless of what others may think is best. Which makes me a very impractical and intolerant human being, but doesn't necessarily make me wrong; but that's something when (and if) you finish this book you can judge for yourself. God only knows but that before I pass on, to God only knows where, if anyplace, I'll decide to follow in my father's footsteps and pick Him up. Or maybe He'll pick me up, which a leading disciple of His son did some years ago, but wasn't able to keep me because of my irascible ways. If I ever do emulate my father, however, one thing you can be assured of is that my ordering of theistic ranking will be Country and God.

My mother, whose father was a rabbi, believed in nothing, not even herself. She chose to believe what her friends believed and as a consequence had so many friends that it drove my father up the wall as she paid almost no attention to him and keeping the house in order. But in a narrow way she did pay a lot of attention to me, and I wish she hadn't, as I'll explain shortly. She was as dishonest as the day is long: a cheater, a manipulator desperate to control others by almost any means. All this was manifested in an undying, but not too endearing, love for me which I learned to hate. Everyone else, though, never directly experienced this kind of love and as a consequence, for the above

reasons, loved her dearly. Had she been born at the time I was (in 1921, in Brooklyn, on a kitchen table) she might have become our first Jewish female President, and probably the last. Her political qualifications were unparalleled and she would have been a great and beloved president. God rest her soul, if it's with Him and quite possibly it isn't. If it is, I'd just as soon not join up with her; enough was enough down here.

My father, being the oldest son in his family, as was par for the course in London those days, was pulled out of school at age ten. He was apprenticed as a carpenter and remained one all through his working life. His education never stopped though. Whenever possible he read and read and read. He was one of the most cultured (intellectually, not socially, to put it mildly — ghetto mentalities tend to stick) and well informed persons I've ever known. He could speak knowledgeably and even profoundly on a broad range of subjects. It's a pity he didn't ever continue his formal education and become a college professor, at which he would have sparkled; he loved to impart his knowledge to others. However, this really wasn't possible. For his own peculiar reasons he couldn't write, and when he did it was illegible and unbelievably lengthy as he tried to say almost everything on his mind. Writing was his way of talking out of earshot. It's a damned shame he wasn't able to rise above his class and the world was a little poorer for it, but a cockney can be a cockney.

My mother had the good fortune to graduate from high school and became a secretary. Having no intellectual curiosity, she rarely read and was poorly informed about the world around her. On the other hand, she had an innate ability to write — legibly, delightfully and highly imaginatively, which she did as often as possible. When I was a baby back in Brooklyn, she entered a contest sponsored by the New York World (long extinct, but in those days New York's most popular newspaper). This involved writing an essay about some recent occurrence in her life which might captivate the interest of the editors and the readers. First prize was a Model-T Ford, which she won even though her story was little more than a distortion of something that probably happened.

She became something of a celebrity around town and the high point came when the car, which neither she or her husband had the wildest idea how to operate, as simple as it was, was delivered to our home in Flatbush. Accompanying the car were some reporters, to interview her. One of them went up to my dad, who was standing off to the side with me in his arms, and looking very uncomfortable as his intellectually inferior wife was basking in full glory. He asked him what he did for a living and what he thought about his wife's remarkable accomplishment. He admitted to being a lowly carpenter but rose to the occasion as Voltaire might have done by replying 'Well, this proves that the pen is mightier than the saw.' The reporter laughed. Had my mother heard it she would have laughed too, once she saw the reporter laughing, but not having the wildest idea what was behind her husband's remark.

Undoubtedly, my mother loved me dearly. However, I was an abused child. Not that I was cruelly beaten or sexually molested or whatever. Rather, it was an abuse derived from a great concern for my physical well being, even if it meant physically torturing me. For whatever her reasons, reasons that don't send parents to jail these days but instead manifest themselves in TV commercials, magazine and newspaper ads and everyday talk among millions of Americans, she was concerned, indeed convinced, that infrequent bowel movements or constipation would slowly and fatally poison your body. She

was a devout believer, who imparted her anal convictions to me as soon as I was old enough to understand what she was saying. I was told, and I believed that my life was in mortal danger if I did not defecate frequently and copiously. Were I to misbehave by not following her dietary dictates and died from fecal poisoning as a consequence, so would she, out of grief of losing her son. Since I was more concerned with her life than mine, I went along with the game, as painful and humiliating as it was.

To make sure I was defecating regularly my mother would put me through the most intensive interrogations on whether I did or didn't, forcing me to look her in the eye to see if I was lying or not. (I didn't exactly care to go through that routine but I must admit that it made me a more truthful person than I otherwise might have been, but not necessarily a better one. As I look back, there has been many an occasion when lying could have helped me to better achieve my objectives which I thought, may God strike me dead if I'm lying, were good ones for my country.) She would monitor my diet in the most rigorously controlled way you can imagine and if she suspected errant behavior on my part, which happened now and then when a playmate would trade me his pastrami sandwich for something his mother wouldn't make for him (a mortal sin on my side, for my mother *knew* that all kosher food was pernicious stuff), it was off to the bathroom immediately where I would be forced to swallow an emetic and vomit my guts out (a classic symptom of radiation sickness brought on by a heavy dose of neutrons).

Or if despite my diet I didn't defecate to her satisfaction, again it was off to the bathroom where an enema tube would be shoved into me end and I would be pumped up to the point where I feared I would burst, and then would come the massive diarrhea (another result of a neutron bomb exposure). In the meantime, on a regular basis I was on a daily routine of drinking vegetable juices to keep the bowels working. (Her favorite was carrot juice, which I had to squeeze out myself from fresh, and they had to be *fresh*, carrots. For years on end, I drank so much carrot juice that my pigmentation changed to a degree where my complexion mainly was orange.) And if she thought the juices weren't working well enough by themselves she would add laxatives. It was not a pleasant life, but I loved my mother dearly and bore up under it.

Even before I started public school, when I was usually close enough to home so I could bolt for the bathroom when the spirit suddenly moved me, there were more than enough mishaps to keep my playmates away from me, leaving me feeling practically leprous. When I started school and found myself with teachers who wouldn't let you go until recess time, it became agonizing. On many an occasion I couldn't hold it in. My poor classmates would be holding their noses and I would be dismissed and sent home. My mother was wonderful about it, dutifully cleaning me and washing my reeking clothing. My father, as much as he desired regularity for himself and his family, was not as tolerant and on occasion when I would come home with my pants full, in an outburst of temper he would shove my face into them, which I didn't exactly appreciate.

This went on for years and my attitude toward my mother became increasingly resentful, although I still would be wracked with guilt when she would accuse me of not paying proper attention to my bowels. Even though she's long gone, the guilt still remains, when I'm awake and in my dreams. To this day, despite an intellectual understanding to the contrary, terror strikes my

heart when I become constipated despite daily doses of Metamucil some two or three times more than recommended on the bottle. At least as bad as my guilt is my defiance over being told by others how to run my life, physically and intellectually. Which, I strongly suspect, is the underlying reason behind my inventing the neutron bomb. In fact, looking back over my professional career, most of the ideas I concocted involved one application or another of radiation, which I knew many people found as repugnant as they found me when I was a youngster. As for the neutron bomb, it is the most moral weapon ever invented. I'll spend some time later on pointing out why. As to the morality of the inventor, that's another matter. But that goes for almost anyone who designs military gadgets that can save or take lives, or do both at the same time — which happens to be the case for the neutron bomb.

Now despite all the attention I've given to my defacatory history, don't get any ideas I'm through with the subject. I'd like to relate an anal episode which was perhaps the worst of the batch, which was quite a batch.

When I started high school I became interested in science. I particularly liked chemistry, and did very well at it. I did so well that I qualified for a competitive exam where the top four or five contestants, who numbered in the hundreds, got college scholarships. I really boned up for the occasion. One morning, along with a couple of my classmates, I was picked up by my chemistry instructor and driven off to the exam. As usual, I had been amply dosed that morning with carrot juice by my mother, for the standard reasons, plus an explanation that getting the poison out of my system at the same time would increase my mental acuity. I would do ever so much better.

Before the exam started we were told that to prevent cheating nobody would be allowed to leave the room, for any reason, until the first half was over. Then we could go to the bathroom, or read up a bit more on our chemistry texts, or talk about the first half, or whatever. As soon as I heard that I began tensing up and, of course, you know what happened.

About two-thirds of the way through the first half the first bowel spasms hit. Now my problem was being able to keep things in check versus concentrating on the exam. For a while I was able to do both, but nature finally prevailed. I defecated in my drawers before I could leave the room. I raced out of the room, cupping the seat of my trousers to keep the excreta from falling out, and headed for the nearest men's room. I was hoping I could clean myself to a degree where I could go back to the test, explain what had happened, beg for forgiveness, and continue. It wasn't possible, I was so thoroughly stained and stinking.

I removed my drawers, very carefully so no more excrement would get on my trousers and bolted from the restroom. For the next couple of hours I was forced to wander around the campus, trying to avoid people, until the exam was over. Then I had to endure the humiliation of an infinitely long ride back home while my teacher and my schoolmates diplomatically suffered very quietly. When I was dropped off, to the enormous relief of the others, my mother didn't have to ask how I had made out. She smelled it.

I was so humiliated that for weeks afterward I refused to attend my chemistry class, until my instructor called to convince me that all was forgiven and forgotten. So well had I been doing before this ill-fated exam that he gave me an "A" for my final grade. As for my mother, my feelings for her were of black hatred for months afterward. A breaking point in our relationship finally

had been reached but that hardly kept her from a continuous assault on my digestive system that went on until she died. I feel guilty as sin for saying this, but when my kids came along never did I allow her alone with them, for fear of what she might do.

My mother also believed that it was unhealthful to breathe through your mouth. Not that she ever explained why. She simply knew that to be the case, like the convictions held by those who have dominated our nuclear policies. Because I was afflicted by all sorts of allergies, my nose almost always was stopped up. To rid me of this life threatening habit, and to force me to breathe correctly, starting at a very tender age she would gag me to make sure my lungs were being properly oxygenated. More likely than not, I would commence suffocating to one degree or another. But out of guilt or fear of hurting her feelings I would do nothing until she saw my distress and removed the gag. She finally gave up. From then on, like many an allergic tot, I walked around with my mouth open looking like a blithering idiot.

She also knew, for her own mysterious reasons, that rubbing your eyes could produce blindness. One of my allergies manifested itself mainly through my eyes, in the form of continual itching and tearing, plus emitting a yellow mucous. Consequently, I usually had my fingers at work, rubbing to ease the itching and putting them around and under my lids to get rid of the mucous. This had her in a panic, but not enough to get me off to an ophthalmologist. Instead, when she caught me at this practice, she would bind my hands behind my back. This put an end to the rubbing, but nothing else. Needless to say, with this wretched ocular condition, my social life suffered considerably as neighborhood mothers, worried I had something contagious, kept their kids away from me. I might as well have had AIDS.

Like all of us I came down with my share of colds. My mother was convinced, again with no explanation, that the best way to deal with a cold was not to feed it or starve it but to sweat it out of your system. When I would come down with one she would tie me down in bed and proceed to pile every available blanket in the house atop me. She would do this even in mid-summer when the temperature was in the 90's or higher. Needless to say, after a few days of this treatment my cold would disappear, which would have happened anyway, along with a fair amount of my body weight. Please excuse the pun, but as for everything else she did to and for me to keep me healthy, I sweated it out.

For all these reasons, as you can well imagine, I spent a great deal of my time as a kid isolated and very much alone. (I still do, but for different reasons: I prefer it that way. I'm not very comfortable around most people and have a bad habit of being abused by many of them, probably because deep down in my psyche I prefer it. When any of them, innocently enough — perhaps, perhaps not — comport themselves around me in a fashion which brings back childhood memories I'd just as soon never recall, I pull away, including from my own wife.) This gave me plenty of time to reflect on the world and myself.

As for myself, like most youngsters, I reveled in fantasies; but not those where I became a champion athlete, or a multimillionaire with mansions and the lot. Instead, the bulk of my fantasies were vengeful, made possible by a remarkable discovery I had made but never proved out — that my eyes not only were receptors but hostile emitters as well. What I knew, indeed was convinced of, was that were I angry enough at someone I could stare / glare an intense

beam of invisible radiation that would literally burn into their eyes and brain, leaving empty smoking sockets as well as an empty mind with no control over their sphincter muscles. (I had discovered the laser decades before anyone else, except no one else knew about it.)

This fiendish ocular power of mine I knew to be a fact. However, for fear of blinding and rendering someone a mental vegetable, I went out of my way for years to avoid looking people in the eyes, especially if I were angry with them for some reason, real or imagined. In the real world I almost always would lower my eyes or look the other way when I spoke with somebody. In my fantasy world, however, I would run wild with scenarios where I used this power, with full moral justification, to take revenge against deserving villains. One scenario went something like this:

For no good reason, I had done nothing to deserve it, I would be kidnapped off the street by some maniacal woman. She would bind me, gag me, blindfold me, and take me off to a room in some deserted house, tie me to a chair and leave me there. I knew I would soon die unless I could work myself free, which through Herculean efforts I always succeeded in doing. Then I would go into an adjoining room where this female monster was, confront her and glare into her eyes as malevolently as I could. Sure enough, the predictable results resulted. Revenge was sweet, it really was. Then I would saunter out of the house, go home and wait for the word to get around that this blind crazed woman had been found staggering around the neighborhood, retching and defecating. When the news reached me, I would always play it cool, to the point of indifference and disinterest.

I don't bring all this up to elicit your sympathy, or perhaps your horror. It's too late for that. I'm not the wretched creature I was once upon a time. Or am I? Sometimes I wonder. Rather, I do so to give you some idea of how I was brought up and what effect, considering the anger and resentment I felt as a child (and still do, incidentally, when I think back on my upbringing or some interaction with somebody brings back old, hardly nostalgic, memories), it may have had on my professional career and conduct, in particular inventing and promoting the neutron bomb.

You can make of this whatever you choose; I choose to take it at face value. Jillions of kids have suffered through far worse than I during their upbringing and few, if any, have done what I've done. Still, I've got more than a hunch that what I've been describing has been a powerfully determining factor, if not *the* determining factor, in what I've done with my life. With all due respect to those who find it fashionable these days to explain behavior in terms of genes and chromosomes and DNA, and all those hereditary factors, I prefer my guess. However, I would steadfastly maintain that inventing the neutron bomb, for whatever reasons — my upbringing, some bad genes picked up by my great grandmother in Lithuania who was raped by a Cossack, or something else you might want to toss in — was the most moral thing I ever did. This may not impress you very much, but it was deemed moral enough to gain me a medal from the Pope for my efforts toward peace. But God only knows, and maybe He does, why I did what I did. Then again, sometimes things just happen.

I toss all this out not so much to damn my ever-loving mother. Rather it's to give you some insight into me and what may have motivated me to do what I did, which I'm certain many of you think was insidious and demented.

This reminds me of an experience I had some years ago when I spoke to a group of college students about the neutron bomb, after having been introduced as its Father. When I finished speaking, a young lady, with a look of loathing, who had never laid eyes on me before and knew nothing about me as a person, asked how I could have invented such a fiendish weapon, even though I had gone out of my way to prove how really fiendish practically all other weapons, including the kinds of conventional weapons that were used to lose the war in Vietnam, were by comparison. I answered her in two parts:

First, I told her (and I was not trying to be demagogic) that I was an American who loved his country. What I had done was what I thought to be in the best interests of my country. After having tried to explain the moral aspects of the bomb and gotten no arguments from anyone, including her — not that she or anyone else was in a position to argue seriously with me, no more than I could argue seriously with her over the moral behavior of college students — why in heaven's name would she be asking me such a damning question?

Then I told her that the real truth was that I simply didn't know what led me to invent the bomb. There were other reasons, buried in my unconscious, that even if I could explain them to my satisfaction I certainly couldn't to hers. She probably would have thought I was even more fiendish, so why bother to speculate on something that would resolve nothing. (I could have added that this not only held for me but for most of the human race as well, especially those who do things that bear vitally on our national security, for underlying reasons they don't understand and wouldn't tell you if they did.) Finally, I told her that I had no intention of baring my psyche to her or anyone else. She had no idea what I was talking about, nor did any of the other students.

When I was a few years old, now living in Los Angeles, before starting kindergarten, my father had taught me to read and write. I read effortlessly. I wrote with such difficulty and so illegibly, that I taught myself, from my reading, to print, which I've done all my life. (As for learning to use a word processor, forget it. I'm simply not capable of understanding such complexities. I'm more than happy to use a typewriter, which I learned to do only recently, with two fingers. In fact, I've always been uncomfortable with high tech computing equipment, never even learning to use a pocket calculator. When I made the original neutron bomb calculation I used a simple slide rule my dad had given me on my fifteenth birthday.) This ability to read at such an early age gave me a considerable head start when I entered grade school (incidentally, I lasted less than a week in kindergarten where every day I would dirty my drawers and be dismissed from class) and despite the aforementioned bowel problems, I did quite well in my studies. As for penmanship, I flunked twice (I deeply resented the teacher holding my hand and forcing me to write correctly) and was excused from being tortured any further.

By the time I graduated from grammar school, and please excuse my immodesty, I had tested highest in school regarding the way they rated IQ's in those days. Now please excuse my arrogance, most of the kids in school were Jewish, having parents who drove them mercilessly to achieve scholastic excellence and I excelled them by far. If you're expecting me to go even one unforgivable step further and tell you that Jewish kids at that time were mentally superior to gentiles, which we were told by our parents, I can't quite get myself to do that, except to say that were this true, I would have been mentally superior to these mentally superior Jews. Having said this, which we

know is sheer rubbish (or is it?), I will say that regarding nuclear weapons, Jews, by far and away, have had a disproportionate effect on their development and the policies for their use. But that's a matter I'm not prepared to discuss here.

When I left grammar school, my long-standing hay fever became particularly virulent, manifesting itself still mainly through my eyes. My alarmed mother took me to a school clinic, not being able to afford a private physician. (By this time the Great Depression was in full swing and we were essentially penniless. Each week I would be dispatched to stand in a government food line, bringing home staples that not only exacerbated my allergies but drove my mother up the wall with concern for my digestive tract.) The clinic misdiagnosed my hay fever for trachoma, a highly infectious swelling and granulating of the eyelids fairly common in destitute areas in those days. I was treated and way over-dosed with silver nitrate drops that had no effect on my hay fever but had a terrible effect on my eyes; both corneas were badly burned and scarred, and I was blinded. Life became a blur. It was too painful for me to go outdoors without practically opaque sunglasses. All I needed to make my hapless condition replete was a tin cup, but since there was no money around to be collected that would have done me little good.

My life changed drastically for the worse. Not only was I still subject to uncontrollable bowel movements in public, but when in public what few friends I had avoided me like the plague because their mothers had warned them that I had some equivalent of the plague. With all the additional irritation to my eyelids, the formation and flow of mucous increased substantially, my eyes resembled a gangrenous sore. I wasn't a very happy young man.

The damage had been done. For years, as the corneal scar tissue gradually dissolved (never completely, though; my vision never came close to normal) I lived and felt like a leper, in a quiet rage over my hapless condition. My schoolwork disintegrated. I was able to read only at very close range and my class attendance was meaningless. Not only couldn't I see what the teacher wrote on the blackboard but I wasn't even interested in hearing what she had to say. Still, not wishing to be held back any more than I already had been due to the temporary blindness, I managed by hook or crook to move ahead, but hardly with my former academic marks. Now it didn't have to be that bad, for my vision could have been improved significantly by wearing glasses. However, in those days, in my neighborhood, for a young man to wear glasses would result in his being ridiculed, being called "four eyes", and his masculinity thrown in doubt. Rather than go through this, I chose to go on with the torment I already was going through and stubbornly refused to wear glasses. In fact, so deep was my resentment over people telling me I needed them that it wasn't until I was well into my forties when I finally succumbed. I've often wondered what course my life would have taken had I put on glasses when I should have. We'll never know, except for one thing; had I done so I wouldn't be writing this book.

Despite my self-imposed constraints during my teens, my scholarly habits did begin to pick up, but only in selective subjects such as literature and science. I did well enough on balance to qualify for college and began just as World War II broke out, and did reasonably well although my heart wasn't in it. I'd have done better by taking correspondence courses where I wouldn't have had to suffer through instructors.

Life went on. The war got hotter and shortly after Pearl Harbor I saw this golden opportunity to get out of school and volunteered for the Army. I was rejected because of my eyesight. Finally, in the spring of 1943, when simply being able to function in some mental capacity was sufficient to qualify for duty, I was called up and sent off to an Army basic training camp in Texas. From there I was sent off to Cambridge, MA, to MIT, to take some technical courses so I could fit into some outfit like the Signal Corps. This was not to be, for later on that year, while still at MIT, fate stepped in and a few months later I found myself at Los Alamos helping to design the atomic bomb. If I don't believe in God, I do believe in fate and hereby hangs a tale.

Among other schemes for keeping me healthy, my mother, Torquemada in a Jewess's clothing, had the conviction that a daily dousing of cold water, the colder the better, was necessary to ensure my survival in a world that really wasn't all that threatening. When I was a few months old back in Brooklyn, during the winter, every day, I would be held under an icy faucet to toughen me up. I readily could have died of cardiac arrest, a possibility that never entered her mind, no more than the damage to my intestines that might have resulted from the excessive enemas I was forced to go through.

This cold shock therapy continued for years. As I grew older, my hot showers, under which I reveled and hated to see come to an end, would be terminated with several minutes of cold water, which I found excruciating during the winter. When we moved to Los Angeles, when I was two, a family ritual was to go to the beach all year round and during the winter, naturally, I was compelled to immerse myself in the not too warm Pacific.

As you can imagine, as time went on I picked up an extreme distaste for cold, which turned to revulsion when winter set in Cambridge that year. I hated being out of doors, especially in view of Army regulations which, in this academic environment, for some perverse reason, forbid earmuffs and any facial protection.

One especially cold and raw day, with the wind howling in from Boston Harbor just after a blizzard had swept through, after lunch, rather than going through the agony of walking across a large open expanse separating the cafeteria from my classroom building, I darted across an alley to my next door dormitory, taking my chances with being caught and suffering the consequences. Sure enough, I was caught, reading a comic book in my bunk, by my company sergeant. I braced myself for the worst. It didn't happen. Instead I was told to go off to some office in one of the classroom buildings as quickly as possible. Which I did, running as fast as I could, and since I had no books to carry, with my hands over as much of my face and ears as they could cover.

When I got there, I was interviewed by a gentleman in mufti who seemed to have a scientific background. As I learned later, he had come on campus unannounced, gone to the office of the president (an old pal of his) and said he wished to interview some of the soldiers. However, he didn't have too much time and he didn't want to interrupt any classes, so could the president arrange to have some who weren't in class be rounded up. I was queried for five or ten minutes and dismissed. (Needless to say I did not return to my dorm, one close call with military justice was enough). I wasn't given the slightest hint as to why I was being interviewed.

A couple of months later, on the first pleasant day I'd seen in months, I was given notice to be ready to ship out the next morning. From Cambridge I went

to Oak Ridge, TN, for more interviewing and for security screening. A couple of weeks later I found myself at Los Alamos, NM, living in an army barrack and waiting for my security clearance to come through so I could be assigned to a section where my college training, which had included physics and mathematics, could fit in.

2. Winning The War At Los Alamos

On the way up to Los Alamos, in the back of a truck, which had picked up a small group of soldiers, including myself, at a tiny railroad station outside Santa Fe, the soldiers, who had been warned not to ask questions of anyone, including themselves, as to where we might be going and why, finally couldn't stand it any longer. We began wondering out loud, as we drove through the desert and then up a narrow winding road up the side of a mesa that lay at the foot of some mountains. Having technical backgrounds, they knew about nuclear research. None of them, though including myself, had ever thought seriously about using the Atom to make a bomb. For that matter, nor had most respected scientists; in fact many renowned scientists long had dismissed the practicality of exploiting nuclear energy on a large scale. For these reasons none of the discussion was even remotely close to what we would soon be engaged in.

On the other hand we all knew about chemical and biological warfare. I had known since I was a youngster when my dad told me about my Uncle Dave who had been gassed by the Germans in World War I, leaving him disabled for the rest of his life (which would not have happened had he been irradiated by a neutron bomb). So naturally, in our speculations on what lay in store for us, the consensus was that being lowly enlisted men, most of us were privates, we were going to be used as guinea pigs for testing out chemical and biological agents. This sounded plausible enough to a few of us who were Jewish, who had been told by our parents or even already experienced it in the Army, how anti-Semitic the military was. Except, some wondered, if the Army was going to do something like that, why weren't they bringing in some blacks, referred to as Negroes by the more tolerant folks in those days and other things by the less tolerant, who were really discriminated against by the military, as I witnessed during my basic training in Texas.

Finally we reached the top of the mesa. We were let through a heavily guarded gate (the place was chock full of heavily guarded gates) and driven off to a barrack which was to be my home for the next couple of years.

We were told by a sergeant that we were free to wander around the base but not to try leaving it. In the meantime our assignments would be figured out and as soon as our security clearances came through we would be called in for a job interview. We were also told that for those so inclined there was an open technical library we were free to browse through, which I decided I would do once I got the lay of the land on the base, to get some idea of what kind of place it was. That afternoon I set forth on a walk around the premises. As I strolled along, I saw coming toward me, engaged in deep conversation, three men whose faces were unmistakable to me, as a recent physics student. They were Nobel Prize winners in nuclear physics and suddenly my suspicions on what was going on up there began to mount. I was practically certain that I was going to be involved in some military application of the Atom, exactly what I couldn't even guess.

The next morning, having nothing better to do, I wandered off to the open technical library, where I proceeded to find a library within the library, on nuclear physics, which I had studied in college and had done quite well at. The inner library contained documents and unpublished articles on nuclear fission, a subject that had barely come into being at that time and which I never recalled seeing in my college library.

To put it mildly, I'm no Sherlock Holmes. I don't have the ability to piece together various bits of information, digest them, analyze them, and come up with strong conclusions. However, at that stage of my life I did have a curious mind, especially when I found myself in curious circumstances. In practically no time at all my suspicions on what might be going on there had crystallized into a definite opinion: they were making the Bomb. But having been admonished not to discuss anything with anyone and fancying myself to be a good security risk, I kept my opinion to myself.

A week or so later my security clearance came through. The next day I was provided with a badge giving me access to the classified area where the work was going on, and escorted into the office of a theoretical physicist of considerable renown, a Jewish refugee from Austria, to be interviewed. He thought, from my resume, that my background would allow me to fit into his group, whose task, based on all the experiments taking place, was to estimate how efficient the first bomb to be tested, the same bomb that destroyed Nagasaki, would be. We gabbed for a while and he told me he would like to have me join his group. Then, about to reveal what my duties would be, he asked me what I thought might be going on there. I told him. He blanched.

Like everyone else there, he had been told not only how important it was to maintain secrecy but it had been so well kept that nobody not appropriately cleared knew what was going on. How, he demanded to know, staring at me very suspiciously, did I know that? So I told him. As I recall, after I told him, those library documents and articles on nuclear fission were removed from open access to some inner sanctum within the laboratory, which was referred to as the Technical Area, available to people appropriately cleared.

Recently, I was interviewed on a TV program having to do with U.S. nuclear weapon secrecy and security. When asked how effective we were at keeping nuclear weapon secrets, I replied that on a scale of zero to ten, I'd give it a five, and that was being charitable. As I go along with my story I'll bring up this security business from time to time as related to my personal experiences in the area, not so much for your amusement or disquietment but rather to show how farcical this business can be, and has been from the very beginning.

When I arrived at Los Alamos, to get into the Technical Area you had to have a special badge, whose markings allowed you access to certain areas, and which naturally had your picture on it. It gradually occurred to me that the military guards, who were armed to the teeth, but hadn't the wildest idea what they were guarding, weren't really paying that much attention to checking out these badges. If they had, so much time would have been taken up scrutinizing each individual who passed through the gates that a significant amount of working time at the lab would have been taken up. This could have had a significant effect on progress made, considering that some of the prima donnas there might have taken offense over their valuable time being wasted by these stupid security procedures and spent half their time complaining and sulking.

Being young and foolish and incredibly naive, to say nothing of acting out some military equivalent of a death wish, I made a bet with a few of my Army buddies that I could get in with someone else's picture on my badge and not be noticed.

The bet was for five dollars. I get in and I'm five dollars richer, 10% of my monthly pay. I get caught and God only knows what, but that never entered my mind. So down I went to the Post Exchange, the Army's equivalent of a modern

drug store where you could purchase everything imaginable, and thumbed through some magazines looking for a photo that bore little resemblance to mine. I selected General Dwight Eisenhower who some 20 years later I was to meet, and who still didn't resemble me. I clipped out his face and pasted it over mine. Then, the next day, with my buddies (or were they?) looking on from a distance, I sauntered past the guards and proceeded toward my office — except that I didn't get very far, as a cacophony of laughter broke out from those who suddenly were a dollar or so poorer.

"Hey", yelled one of the guards, looking at me extremely suspiciously, "come on back here." Back I went, my buddies still howling. "What the hell's going on?", he asked. "I don't know", I replied, trying to keep a straight face. "Why are those guys laughing?", he asked. "Ask them", I replied. He stared intently at me and suddenly spotted Ike on my badge. "This ain't you!", he exclaimed. I agreed it wasn't and with a sinking feeling that I had had it, I peeled off Ike and revealed the real me. He should have turned me in to the base security officer and I might very well have been court martialed and spent the rest of the war in a stockade. Instead he looked at me rather gruffly and told me "You pull that stunt again and you'll wish you were never born", plus some obscenities I won't bother to repeat here. Then he let me go in. Needless to say, I never did pull off that stunt again, despite the financial inducement.

What I'm driving at here is that if I could pull off a stunt like that, any half-assed saboteur could have done the same thing. He could have swiped someone's badge someplace on or off base, which wouldn't have been too difficult, and done God only knows what. Apparently this never happened, but it might have and the bomb project set back significantly. Who that saboteur might have been, I can only speculate wildly, but my guess is that he would have been an American in the employ of the Soviets, our great wartime allies who were spying on us at the lab. Why, you might ask, would the Soviets want to do such a terrible thing to an ally fighting the war against Germany? That doesn't make any sense. Maybe, and then again maybe not; for in my opinion the Soviets not only would want our bomb secrets to enable them to get started on their own development but if they could have postponed the completion of the project sufficiently long enough the U.S. might have felt compelled to invade Japan with conventional forces.

Official U.S. estimates indicated this would have seriously depleted our military resources before achieving victory. Since the Soviets apparently had no intention of doing this themselves, when the war was over they would have been in an even more favorable position to further their imperialistic ambitions. So much for this irrelevant guesswork, except to say that it would have been far easier for the Soviets to attempt a shenanigan like this, considering that they had their spies well established at Los Alamos, who could have furnished the information necessary for a saboteur to do his dirty work. As far as we know, this was not the case for the Germans.

Now if you're wondering, after having read this flight of fancy, whether there might have been any saboteurs in the area at the time, my guess is yes. Later on that year, fall of 1944, General Leslie Groves, who headed the Manhattan Project, visited Los Alamos. He addressed the scientific staff, of which I was one, and told us the cat was out of the bag insofar as other countries were concerned, particularly the Axis powers. They knew what we were doing at Los Alamos, but he believed they didn't know in any detail, and

pleaded we all be as careful a possible to keep the secrets secret. Despite my sometimes capricious behavior I did. There were others, that many of you have read about, who didn't. One of them was Klaus Fuchs, a devout communist, a brilliant theoretical physicist, who had fled Germany to get away from the Nazis. He had gone to England where he joined up with the British in military research, after passing a security check that he could be trusted. (You may recall that in the pre-World War II days the British were far more tolerant of commies than were Americans.) Shortly after the Los Alamos lab opened for business the British sent a small group of scientists to work with us, including Fuchs, who after a while made contacts with American communists and got some valuable information off to the Soviets.

I knew Fuchs, who was in my division, but only slightly, which undoubtedly was the way he wanted most people to know him. His assignment was to calculate how the high explosive system that detonated the Nagasaki bomb (the one I worked on) should be designed. Once a week or so, our division, which besides Fuchs held some extremely bright theoreticians (a few of whom later were to win Nobel Prizes), would hold a seminar where one of the members would describe what he was up to. Whenever possible, if he had the time, Robert Oppenheimer, the director of the lab, a theoretical physicist himself, would attend.

One day, it was Fuch's turn to give a seminar. Oppenheimer not only found time to attend but was so fascinated with what Fuchs had to say that he stayed throughout his recitation. This was quite a compliment, for Oppenheimer, a very busy man, more likely than not would only stay through part of the lecture before he felt compelled to leave and go back to running the lab. When Fuchs had finished, Oppenheimer got up and praised him to high heaven, saying it was the best theoretical work he had seen to date, leaving Fuchs blushing modestly and others, who never would have gotten such an accolade, feeling rather envious.

(On another occasion, to expose another side of Oppenheimer's personality, which could be intolerant and downright sadistic, he showed up at a seminar to hear Dick Erlich, a very bright young physicist with a terrible stuttering problem, which got even worse when he became nervous. Poor Dick, who was having a hard enough time at the blackboard explaining his equations, went into a state of panic when Oppenheimer walked in unexpectedly. His stuttering became pathetic, but with one exception everyone loyally stayed on trying to decipher what he was trying to say. This exception was Oppenheimer, who sat there for a few minutes, then got up and said to Dick: "You know, we're all cleared to know what you're doing, so why don't you tell us." With that he left, leaving Dick absolutely devastated and unable to continue. Also devastated were the rest of us who worshipped Oppenheimer, for very good reasons, and couldn't believe he could act so cruelly.)

Fuchs, in his own quiet modest way, went on doing superb work and at the same time providing much of it to the Soviets. He finally was caught and sent to prison in England (he was under British legal jurisdiction). After some years he was swapped for a Soviet spy and allowed to return to East Germany, then under communist control, totally unrepentant and still a devout commie. I think he should have been shot, but the British traditionally have been far more sparing of spies than ourselves. With hindsight, it's easy to say that he never should have been allowed to come to Los Alamos, but that's history. On the

other hand, this sad story is another example of how shoddy U.S. intelligence and counter-intelligence can be.

What bothers me even more than the shoddiness of our intelligence is even when we're smart enough, or lucky enough, to catch a spy, we're so goddamned inconsistent in the way we punish him or her. You may recall that right after World War II we caught two American commies, Julius and Ethel Rosenberg, who had been getting atomic bomb secrets during the war from Ethel's brother David Greenglass, an Army enlisted man at Los Alamos who was in my barracks and whom I knew somewhat, and passing them on to the Soviets. All three of them should have been executed for treason, but Greenglass, a real loyal family type more than willing to rat on his own sister, copped a plea by helping the government prosecute her and her husband and send them off to the electric chair, Greenglass got away with murder and received a relatively light jail sentence. But those were the days when we were bound and determined to protect our nuclear secrets even though the Soviets were more than capable of making out on their own. This they did pretty damned well; years before our intelligence predicted it, they exploded their first atomic bomb.

Compare this treason with that of the Walkers who wore the uniform of the U.S. Navy and gave priceless intelligence information to the Soviets, for a pretty hefty price, in contrast to the Rosenbergs who gave them far less valuable information for nothing. They were given pretty stiff sentences but it's safe to predict that one of these days they'll be released to make big bucks by writing their story. Or compare it with the case of Jonathan Pollard who far more out of dedication to our great ally Israel than to fattening his wallet gave them some extremely sensitive intelligence information — which his country already had been doing, but officially. For his dastardly act, Pollard was given life with no possibility of parole. Being a nice Jewish boy, passionately dedicated to Israel's survival, you might expect that I would regard Pollard's actions more leniently than the government. I don't. Like the Walkers, I think he should have been shot.

On a comparative basis, the Walkers' behavior was far more execrable than Pollard's. If those were the kinds of sentences the government wanted to pass out, they should have been switched for these guys. It just wasn't fair. Don't go getting ideas, however, that I might change my mind about those who betray their country. They all should be done away with. On the other hand, I wonder every so often whether I should be less rigid on these matters, for as the great French statesman Talleyrand once said: "Treason is a matter of dates." *C'est vrais*.

One night, having been working late, what else was there to do, I wandered over to the shop of a metallurgist friend of mine. There was an armed guard at the door who needed permission from my friend, since my badge did not give me automatic access, to let me in. My friend's job was to fabricate uranium-235, the rare stuff that went into the atomic bomb, in contrast to the plentiful stuff that occurred in nature, uranium-238, that would be going into the bomb, called the Little Boy, that leveled Hiroshima. To gain experience in working with uranium-235, he had been machining uranium-238 which had just about the same metallurgical properties and cost practically nothing, less than dollar a pound, less than a tenth the price of good pastrami I get at my local delicatessen

these days, as my mother's spirit hovers over the counter hexing me and the proprietor.

George had been working practically every night, since the time was fast approaching when the bombing of Japan could begin and every minute counted. In contrast to the Nagasaki bomb, which had yet to be tested and was in some doubt as to how well it might work, the Little Boy was virtually guaranteed to do its job.

As we chatted and George worked away, I noticed this ring of a darkish metallic material on a workbench. I picked it up. It was incredibly dense, far more so than lead or tungsten or any other metal I was familiar with. "What is this, George?", I asked. George, although I pretty well knew what he was going to tell me, that it was ordinary uranium, said "Guess". So I told him what I thought it was. "Guess again", he said. Suddenly I realized what I had in my hands, a hunk of history that was going into the assembly of the Little Boy bomb. I was petrified.

When I had recovered from shock, I asked George what would happen were he to go off to the bathroom, leaving me there with this uranium ring and trusting me to remain there until he returned, but instead I had walked out of the room with it. "Probably nothing", he replied, explaining that if I had his permission to walk in I didn't need his permission to walk out. Then, pointing to the guard at the door, he went on to say that even though I was free to leave I'd better not try walking out with something that looked valuable to the guard, like some fancy tools, or I might get shot in the process. The guard, who was an Indian from one of the local pueblos, not cleared to know what he was guarding and wouldn't have understood if they tried to explain it to him, probably would have thought no more of my walking out with the uranium ring than with a cup of coffee. Easy in, easy out, provided that I didn't try walking out with something he deemed of value.

I've often wondered what would have happened were I, on some weird whim of the moment, to have taken the uranium out of the room, gotten it out of the lab, which wouldn't have been too difficult, headed up into the mountains and beyond, and someplace along the way tossed it into a lake, thereby shielding out the radiation that nuclear-detection posses would be looking for, and then.... You can make up your own scenario. Almost surely I would have been caught, but then who knows? Conceivably I could have worked my way down to Mexico and holed up in some remote village for the rest of my life. But that's the kind of dreams good adventure tales are made of.

Heaven only knows how many serious security infractions were committed during the war at Los Alamos, how many were discovered, and what fraction of them might have turned into disasters, but obviously didn't. I doubt if we'll ever know. I will say though that despite the weaknesses in security at Los Alamos, I would guess that overall the record was pretty good. I've never seen so dedicated, to their country, a bunch of people, and dedication such as this almost invariably makes for good security habits. One way or another, whatever harm security violations might have caused, what counts is the end product, which I regard as one of the greatest and most moral military successes in history: We won the war in short order, saved hundreds of thousands of American lives, and probably millions of Japanese lives and their towns and

cities by not invading with conventional forces and thereby repeating the barbarities of the war in Europe.

Once the war was over, however, nuclear weapon security began going to pot when those who had worked on the Bomb no longer were sequestered, forbidden to make outside phone calls and having their mail censored, both ways, as we were at Los Alamos. Many scientists now regarded secrecy and democracy as incompatibles, and felt free to speak out on matters which still were classified. However, the greater danger to security came not so much from those who carelessly or even purposefully let out nuclear secrets, but from those, in and out of the government, with full clearances, who fabricated and distorted nuclear policy issues for political or ideological reasons. It was this kind of nefarious and dangerous behavior by politicians and ideologues, in not giving the American people an honest account of our nuclear policies, that finally made me so intolerant, rebellious and openly contemptuous of the U.S. defense establishment that I was kicked out of it. I was forced into early retirement by dint of being refused the ability to go on working. I had bitten the hand that was feeding me and it stopped feeding me. Looking back, although I regarded such behavior as contemptuous at the time, today I've become somewhat more tolerant. I reluctantly accept it as an inevitable part of our democratic process. When a president, a defense secretary, a key congressman, or a renowned scientist, in taking a stand on a crucial nuclear issue, comes out with this nonsense, on the surface I smile and accept it. Beneath the surface, I continue to churn in anger and disgust.

I might say that when after some forty years of doing what I believed to be in the best interest of my country, a belief shared by precious few of my countrymen and practically not at all by my government, I was forced to call it quits, I left not with a bang, or a whimper, but with a profound sadness. I'm not the type who sheds tears easily, unless I'm watching an old movie, but when this happened I went off by myself and cried. It wasn't that I deserved better than I got because I didn't. Not only was I lighting into the government that had suffered through me far longer than it should have; nothing I had been doing for some years had been appreciated or was of any real value to them.

The truth of the matter is that I asked for it and I got it. Although my wife still remains bitter (our family income went downhill in a hurry and no defense outfit was willing to touch me with a ten foot pole.) I accept what happened, but not too happily. I still think I could have been of help in some intangible way, had the government been more tolerant than myself and allowed me to stay on, doing my own thing while going through my childish antics. That's all history though and not too relevant at that.

Was I a good soldier at Los Alamos? Of course I wasn't. The miracle of it all was that I managed to survive despite my errant ways. What I mainly had going for me was that my boss really liked me, despite myself, and would defend me against complaints coming from my military superiors. (There were also a few civilian scientists who acted up every once in a while to the displeasure of their colleagues. One of them was Dick Feynman, like myself a Jew from Brooklyn, whose social behavior could be atrocious but whose scientific abilities so brilliant that he got himself a Nobel Prize in physics later on. Dick was in my division and one day several other division members, fed up to their ears with him, went to see the head, Han Bethe, another refugee who

also was to win the Prize. After hearing their complaints Bethe responded superbly, saying that he was far more concerned with Feynman's answers than his antics. That ended that, but not Dick's antics, some of which, had I pulled them off, would have gotten me court-martialed.) If I wasn't exactly the best soldier in my detachment I also wasn't the worst, but perhaps a close second. The worst was Ted Hall, a young man who had come from Harvard to Los Alamos at age seventeen. Before that he was completing his doctorate, having started his undergraduate work at age thirteen.

When he turned eighteen, the law being the law, Ted was inducted into the Army and assigned to my detachment, to go on doing what he was doing. In the meanwhile we had become good friends.

He was sworn in, assigned a bunk in one of the barracks, given a uniform and told where the mess hall was. Time went by and all went well with Ted and the Army, until payday. Everyone, including myself, lined up to receive our monthly stipend from the paymaster. That is, everyone but Ted who had never thought about so mundane a matter. The line thinned down and out. When the tally was taken to balance the books, it turned out that Private Hall not only hadn't shown up to collect his pay, he hadn't shown up at all. His bunk had easily passed inspection each day for the simple reason that he never slept in it; he had remained in his civilian dormitory. He had never shown up at the mess hall for the simple reason that he had no appetite for Army food. (I generally loved it, since almost everything put on my tray had been off limits at home; and to my astonishment I didn't become hopelessly constipated and die of intestinal poisoning.) Also he literally stunk from body odor, from not bathing, which he would have been forced to do had he shared the intimacy of barracks life. At the lab, where he kept mainly to himself and others were able to keep their distance from him, his stench was tolerated.

More time went on and the Army became increasingly uneasy over Private Hall. Not only did he refuse to be paid or show up at the barracks, but after a while his uniform began to stink, along with the rest of him, about which he did nothing. It also developed tears, about which he did something — he stapled them together. On a nice day Ted would glisten in the sun. To top it all off, every Friday evening, being Jewish but not very religious (although on occasion, when everyone else had left, he would squat atop a pile of crates and go through Buddhist incantations), he would remove his Army cap and don a yarmulke, strictly against military regulations, and amble, head down, around the premises seemingly in deep Talmudic meditation. He was finally picked up by the military police and told to put on his military cap. He refused and was taken to the company commander for disciplining. He pleaded constitutional rights of religious freedom and won his case; the poor commander was having problems enough trying to keep the soldier-scientists in line and he wasn't about to make an issue over something this trivial.

The day finally came, however, when the Army decided to take Private Hall in tow. He was ordered to show up at the office of the company commander who demanded that Ted behave like the rest of us. It turned out, however, that Ted had gotten hold of the Army regulations, scrutinized them thoroughly and found no language in them that a soldier working under such exceptional circumstances, whose work was so essential (which it was), could be forced to obey all the regulations, except for proper dress. So Ted had to get a new uniform but there was nothing else the commander could do, including forcing

him to collect his pay. This facet of Ted's behavior really had the commander climbing the wall; he didn't wish to have to explain to some Army auditor why his fiscal affairs were out of order.

The commander threatened Ted, to no avail. Then he pleaded with him, to no avail. Finally he asked Ted to explain himself. "Major", said Ted, "look what you're doing for me. You're clothing me; you're offering me free quarters; you're offering me free meals; you're providing me with free medical care; and whatever else. Tell me major, would it be ethical for me to accept money for all this? In all conscience I can't. I've got more than enough money [Ted came from an affluent family] to provide for my room and board and medical care. So why should I tax my country, which needs the money to fight a war, for such services?" Which had to be one of the most patriotic statements since Patrick Henry.

With that the major's case collapsed. He struck a deal: Ted would have to wear an unstapled uniform and for the sake of fiscal responsibility would he please accept his pay. Ted accepted and went on with his eccentric life and more than made his contribution to his country, which he obviously cared for a great deal. He also cared a great deal for the Soviet Union and, like Fuchs, passed on invaluable information to them. This wasn't discovered until more than 20 years after the war, and it wasn't openly revealed until almost another 20 years after that.

(While all this was going on, Ted's brother Ed, whom I had met some years after the war, had dedicated himself to becoming a professional military officer. He did so with great distinction, although hardly without controversy, and among other contributions directed the development of the Minuteman intercontinental nuclear ballistic missile which today, some thirty years after the concept was developed, still represents the Air Force's deterrent mainstay. Like his brother, Ed had his set of eccentricities and compiled quite a record. But that's another story for someone else to relate, which would include episodes such as Colonel Hall treating generals as morons of dubious intellectual integrity and not very honest besides; and got away with it because he was too valuable to be punished.)

As for my own military comportment, which we've been discussing, while not as outrageous as Ted's I also wasn't as valuable as him. I went out of my way to show my resentment against military discipline and if I thought I could get away with it would disobey at every opportunity. On an ordinary military base I either would have had to change my ways or end up in the stockade. At Los Alamos, however, where the Bomb had a far higher priority than compliance with military regulations, I managed to get out of doing ordinary things that ordinary soldiers were expected to do. Despite the risks involved, my defiant habits from childhood remained with me, and still do.

One of the things, besides making up my bunk, cleaning the barrack and doing latrine duty (which I usually managed to avoid by pleading the need to work long hours at the lab, and being supported by my boss), we were expected to do was a daily early morning exercise routine, Ted Hall excepted. Being a physical fitness buff, I was able and even willing to get up in time to go through a calisthenics routine with the rest of my detachment. Since there were some exercises I liked and others I didn't, I would always go the rear of the formation where I couldn't be seen by the sergeant up front. However, one especially cold winter morning, not only didn't I do what I didn't want to do, I did nothing. I

stood there sullenly with my hands in my pockets, my ears and nose feeling like they were ready to drop off from frostbite, while the others went through the paces, considerable more vigorously than usual I thought.

Suddenly a hand descended sharply on my shoulder. I looked around. It was my company commander. He was livid. "Why aren't you exercising?," he demanded to know. I mumbled some lame excuse. "Look behind you!," he demanded. I did and there, a few feet away, was General Groves, a true blue soldier who had risen early to be with his troops and watch them exercise and had pointed me out to the commander. With that, I began exercising but good, but it was too late. When the exercising was over I was called to the commander's office and received what was called a summary court martial. I wasn't locked up or anything like that, for that would have interfered with my work. Instead I was restricted to the base for several weeks and was forced to do an inordinate amount of chores, especially latrine duty. I had no choice but to comply; not to would have been disastrous.

From then on I managed to behave much better, for a repeat performance could have been my demise. I could have been shipped out of Los Alamos and transferred to some very unpleasant isolated place where, for security reasons, I would have been isolated from the others. Obviously, I didn't want that to happen. I wouldn't have been sent into combat, not because I couldn't see well enough to aim a gun but because of the concern that I might be captured, interrogated and spill the beans. Since Oppenheimer, God bless his soul, had insisted, practically over General Groves dead body, on running a completely uncompartimentalized operation in the true scientific tradition, so that people could interact and catalyze each others thoughts and ideas, I knew quite a lot of what was going on there and how rapidly we were progressing. At any rate, I did manage to behave a lot better after that and even managed to get promoted before the war was over, even though my rise in rank was not quite meteoric.

When the war was over and I had embarked upon my nuclear weapons career, I was visited by the FBI who queried me about Ted Hall being a possible security risk. He was suspected of being a member or sympathizer of some far out Yugoslavian radical revolutionary organization, and knowing of my wartime friendship with him, they wanted to know what his ideological bent might have been. I gave them a candid account of Ted, including his dedication to Buddhism, whereupon the agent's eyes went from mine to a statue of Buddha my wife and I had picked up on our honeymoon in San Francisco, which I kept on a shelf behind my desk. For a while there was a strained silence. Then he thanked me and left, and I started breathing again.

Going from the lowest (symbolized by yours truly) to the highest at the lab, there was the matter of its director, J. Robert Oppenheimer. (I was told by an old colleague of his that J. stood for Julius and he despised Julius as much as I despise my middle name, Theodore, and preferred to be called Robert, or by his friends and intimates "Oppie".) He was a real sadist, but also one of the greatest Americans of our time. I've already described an episode involving his sadistic behavior, but before he left Los Alamos there was another episode involving Oppenheimer deservant of the most special mention here. It gets to the core of what all this nuclear weapons business is about; namely, the kinds of people, most of them extremely bright but not necessarily intelligent or honest, who have been responsible for fashioning our nuclear weapon policies. I'll be

discussing many of them I've known directly or have known about first hand. Although they're all to be admired in many ways, in many other ways many of them deserve little respect and I don't intend to be too sparing of them.

Rarely, when some of us at the lab discussed our project and its meaning did we dwell very much on the profound moral aspects of what we were doing. This is not to imply that many of us did not do so privately (I never did). However, when two or more of us got together we never doubted openly that we were doing the right thing for a righteous cause. We were Americans whose country was at war with detestable enemies.

This was particularly true for most Jewish scientists, and there were a lot of them, including Oppenheimer. Many of them were refugees from Hitler, whose friends and relatives had suffered hideously at his hands, and who harbored precious little affection for the Nazis. They had a vindictive and even barbaric compulsion to complete the project in time to bomb Germany. Of course, this never happened and when we finally had a couple of bombs to drop, Germany had surrendered.

Trying to throw a little logic into this emotionally supercharged equation, I might say that even if we had finished in time to drop a couple of bombs on Germany, it's far from clear it would have made any real difference on the outcome of the war. By this time, the allied bombing and shelling of German cities had reduced most of the country to rubble and it was just a matter of time, a very short time, before the Nazis would have given up. It had become clear to practically everyone but Hitler that the jig was up. Most Germans were in no mood to fight to the bitter end, as many were predicting the Japanese would do. So what might have happened if the atomic bombs that burst over Hiroshima and Nagasaki, had landed on Zilchburg and Hinkledorf? I'd say: What happened.

Undoubtedly nuclear bombing Germany would have made many scientists at Los Alamos, especially the Jews, including myself, deliriously happy. How sweet it would have been, but it would have been the sweetness of revenge, not necessarily of victory. The real war already had been decided on the ground as U.S., British, French and Soviet troops (who were at least as bitter as the Los Alamos Jews over what Hitler had done to their country) were slogging their way through Germany destroying town after town and city after city in the process. The killing of many additional thousands of Germans, or perhaps substantially less since Germany was chock full of air raid shelters that would have drastically reduced casualties, even from atomic bombs, might have given many Los Alamos scientists great pleasure. This would have been understandable, but not very moral, and perhaps not even very sensible. The A-bombs were in very short supply, with highly limited production, and probably would have been far more valuable were they to have been used against Japan. However, as the war and the atomic bomb effort played itself out, what happened, happened. There's no point in going on any further as to what might have happened *if*. Except that in describing attitudes and emotions at Los Alamos during the war, I would observe that they were at least, and probably far more, as much irrationally based than founded on objective analysis of what the war was all about and what the best strategy might be for winning it. I would guess that the situation in Washington, where President Truman and his military and diplomatic advisors were contemplating how to handle the Bomb

was probably not too different. And I would say flat out, based on long sad personal experience, that it's not very much different in peacetime.

After the war, before he got himself in trouble with the government over the H-bomb, Oppenheimer had become perhaps the influential government consultant on nuclear weapon matters. One day he was in a high level meeting in the Pentagon dealing with what kinds of weapons should be developed. In his standard calm, soft-spoken, low-key, deliberate, and carefully reasoned manner he put forth his analysis of what should be done. Whereupon he was interrupted by a young naval officer who, with great emotion, declared: "Dr. Oppenheimer, you haven't fought in an actual war where vital decisions have to be made on short order with little time to gain sufficient information on what to do. That's the real world, Dr. Oppenheimer, and you're not taking it into account." Oppenheimer's response to the commander (no admiral would have been so foolhardy as to issue such a challenge to such a powerful person, which is mainly why peacetime admirals get to be admirals) was short and devastatingly logical. "Commander", he said, "I agree with you but what you don't seem to understand is that we're not at war, which gives us plenty of time to gain sufficient information to reason these things out in a calm atmosphere. So I would suggest that you calm down and we proceed with our discussion." They were both right and wrong in their opinions. Neither of them, however, seemed to realize that whether you're in combat or sitting around a conference table in peace time, to plan for the use of nuclear weapons in any well-reasoned analytical fashion simply isn't possible. In fact, it's irrational to think it can be done, so profound is our ignorance on this matter.

One August afternoon in 1945, a familiar voice came out over the laboratory intercom. It was the voice of a young lady who usually was paging somebody who somebody else wanted to talk to. Most popular on the list was Mr. Lujan, a local New Mexican who was chief custodian and always in demand to get this or that fixed and was rarely to be found in his office. Next in line was Oppenheimer who could only stand to be in his office for so long before getting so itchy that he felt compelled to wander off some place — every so often, as I mentioned, to be with his fellow theoretical physicists. This time, however, nobody was being paged. Instead the young lady announced that one of our "units" had been dropped over Japan and that evening Dr. Oppenheimer would address the scientific staff on the matter.

So much for the rest of the days occupation. The place went into a frenzy of excitement and anticipation of what Oppenheimer was going to say. Long before the time Oppenheimer was supposed to show up, the staff had collected in one of two motion picture theaters at Los Alamos which were used not only for showing movies, but social events like community dances (with a live band that would have given Benny Goodman an instant coronary), and every once in a while Theater #1 was used for a colloquium where some senior scientific staff member would talk about his group's activities. In this case the building would be sealed off by military police who would inspect your badge before letting you in. (I don't know how effective this was but it wasn't exactly foolproof. On one occasion I remember a young Indian girl walking in, who may very well have had a badge that allowed her into the laboratory to assist Mr. Lujan in keeping up the place, and sitting down to see what she probably thought was

going to be a movie. It was only after the speaker began that she realized she really wasn't interested, let alone cleared, and walked out.)

The custom for these colloquia was that Oppenheimer, a very punctual guy, would walk out on stage from one of the wings, make a few general remarks in his own quiet way, and then introduce the speaker. Not this time. He arrived very late and entered the theater from the rear, strode down the aisle while all of us rose and cheered him, stomped our feet and in general behaved like a pack of bloodthirsty savages welcoming back their conquering warriors, who were displaying the heads or genitals, or both, of the conquered.

When Oppenheimer was able to finally quiet down the mob, he set about telling us what little was known about the results of the bombing. There was one thing he knew for sure: the "Japs" (not Japanese) didn't like it. More howling, foot stomping, and the like. Then he got to the nub of the matter: While we apparently had been successful, and his chest was practically bursting with pride, he did have one deep regret, that we hadn't completed the Bomb in time to use against the Germans. That really brought down the house.

This had to be the most fascinating, to say nothing about being the most historic, speech I've ever heard. Apart from those who were there that night, I don't recall ever meeting anyone who had ever heard of it. There's an explanation for this that I won't bother to go into here because that's not what I'm writing about. That's a matter for a good investigative reporter with an historic bent to go into, and maybe get himself a Pulitzer award.

Needless to say, when the war was over, there were innumerable articles, books, movies, etc. on the development of the Bomb and its use on Japan. However, none of these even alluded to Oppenheimer's speech on Hiroshima eve. Perhaps there was a deliberate attempt to keep this part of his (and his staff's) character under wraps. To the best of my knowledge no one ever taped it or took notes, even though it was one of the most momentous and meaningful speeches of our time.

Years later I was talking to Harold Agnew, a wartime acquaintance who was now director of Los Alamos. I brought up the speech, asking him if he couldn't assign someone to track it down by looking for a tape or interviewing people who were there that night who were willing to talk. He became very fidgety and said he really didn't know very much about the matter. He had been on the bomber that dropped the Little Boy bomb on Hiroshima and didn't even know that such a speech had been given, even when he returned to Los Alamos. Nobody had bothered to tell him about it, so he claimed, and at this juncture he wasn't curious enough to try and find out. Harold Agnew is one of the most honorable men I've known, but I didn't believe him.

I bring up this episode not so much to relate an historically intriguing tale. Rather it's to confirm the obvious regarding human behavior, which most people accept and then conveniently forget it and go about their merry ways. People are people, and all people have emotions and biases, rarely understood: intellectual and emotional behavior don't necessarily have an inverse correlation. Oppenheimer, as superhuman and wise as he was in so many ways, was still a human being. Depending upon the occasion he could be as human (dramatic, overwhelming, megalomaniacal, self-serving, and even downright dishonest, as his arch-rival Edward Teller was accused of being, and was) as most of us. Like most of us, depending upon the circumstances, he could change his personality and alleged beliefs at the drop of a hat.

Several weeks later, when the war was over and Oppenheimer had left to return to academe, he went through a moral reversal. He became wracked with guilt over what we had done and took the lead in the U.S. scientific community to bring about nuclear disarmament. I remember him returning to Los Alamos and again addressing the staff, this time in the other theater with no guards around to check your clearances, and giving another dramatic speech. This time he beseeched those who still remained at the lab to work with him toward disarmament and remove the moral stain of the Japanese bombings. Although I wouldn't question his sincerity at the time, or any time afterward, I didn't believe a word he said. I'm sure he did, every last word of it, delivered not with the stridence of military conquest but with the somberness of someone who, to cite him "had known sin."

Needless to say, his second speech has gone down in the annals of history. It deserves to. So did the first one, even more so for it was so much more significant and relevant to the problems we face in dealing with the Nuclear Age. I'm afraid, however, that with each passing year, as the ranks of those in attendance that evening grow thinner and thinner, the probability that this historic occasion will be explored in detail by historians grows smaller and smaller.

3. The Commies Are Coming

I would guess the academic backgrounds of those who concocted ideas having an impact on the world over the last century or so, would reveal mainly two categories: little formal education, or education at the highest levels with a batch of advanced degrees to match. As for the neutron bomb, which certainly shook up the world, and my life, for some years, this invention was the work of a college dropout. Not a scholar, or an intellectual or creative in the sense that one would describe a composer, an artist, a poet. I simply happened to be fascinated with what most were revolted by — the military uses of radiation. My work in this area, which involved many more ideas than the neutron bomb (some of them I regarded even more relevant), hardly involved working for months or years, wrapped in deep thought. Rather it was in the way of intuiting solutions to military problems by learning the rudiments of nuclear radiation (neutrons, gamma rays, beta rays, alpha rays) and then looking around for means to make them practical. It usually took me minutes to do the intuiting; then hours, days, months, or even years (as was the case for the neutron bomb) to find the right means; and then minutes again to make the necessary calculations to prove out my intuition.

An acquaintance of mine who developed and tested the first workable laser once described the laser as a solution looking for a problem. In my case, I had no difficulties in figuring out problems and devising solutions to them; but for me to develop some contraption to make my idea practical, it would have been easier to fly to the moon. I rarely bothered to understand in detail how these contraptions worked; in fact I had precious little interest in even looking at them. (I remember one day being escorted through the museum of the Livermore nuclear weapons laboratory and shown models of all the bombs they had developed. When we came to the neutron bomb, I looked at it briefly and passed on to the next one. My host was flabbergasted. He had expected I would go through the roof with excitement and bombard him with technical questions.)

After I left Los Alamos, very begrudgingly, because my father's dream was that I become a scientist (my mother's dream was that I become a postman like my Uncle Harry, with civil service protection), I entered graduate school. The challenge was too great for me. I really wasn't interested in learning things for the sake of learning. After a couple of months I dropped out. Since the Cold War was getting under way and Americans found it easy to start hating the commies they had embraced during the hot war, there was plenty of work to be had in the defense business. So I got a job in an aircraft factory figuring out how to calculate antiaircraft missile trajectories. The figuring out part was just fine, and I rapidly learned more about aerodynamics than I ever wanted to. The calculating was a pain in the neck. I would sit for hours at a time at a desk calculator grinding out numbers. I became bored to tears and began thinking seriously of getting a manual labor job, like returning to grave digging.

I began complaining to the fellows in my carpool. One of them, who never discussed his work with the rest of us, giving us the idea it was pretty highly classified, asked me about my background. When I told him I had been at Los Alamos working on the Bomb, he said he would check around. He did and shortly thereafter I joined what was to become the world's most famous think tank, the RAND Corporation.

RAND was an outfit established by the U.S. Air Force after the war whose original mission was to provide guidance to the Air Force on what kinds of weapon systems to develop, primarily for dealing with the Soviet threat. To do this, now that we were into the Nuclear Age, it was necessary to have someone around who knew something about atomic bombs and had no moral compunctions against working in this area. Such people were in short supply in those days. The war was over and there was a natural desire by most who had worked at Los Alamos to apply themselves to peaceful pursuits. Many, if not most, of them now held grave qualms over moving ahead with these weapons. Moreover, many, if not most, were of liberal political persuasions and refused to believe the commies were a serious threat. (I remember Edward Teller visiting Los Alamos shortly after the war to plead with those still there to remain there because of the Soviet threat. He was roundly booed and lucky he wasn't pelted with tomatoes and rotten eggs.) As for myself, hating the commies' guts, I was more than willing to work on the Bomb. I had hated them since I was a kid and I'll explain why.

The neighborhood where I was raised, in East Los Angeles, was almost entirely Jewish. While not quite a ghetto, although most of the parents had come from European ghettos and, like my dad, had ghetto mentalities, it was hardly affluent. Most of the fathers were decidedly to the left, the radical left. A great many of them thought the Russian Revolution was the greatest thing since sliced bread and became communists. My father, after giving up God, had become a socialist in his teens and remained one until Franklin Roosevelt came along, and then switched to the Democratic Party. Since he was able to obtain steady employment at carpentry at a decent wage (we're talking about the mid-1920s), even though some of his best friends were commies, their ideas of overthrowing and taking over the government were a bit too much for him. He had no use for capitalism but at the same time didn't care to live under a Stalinist regime (he didn't like dictatorships of any kind, including that of the proletariat) and didn't like the idea of the commies infiltrating American labor unions to help bring this about.

One day he discovered that the communists in our neighborhood were trying to take over his union local. Being an official of the local (he was the treasurer, not because he understood accounting, my mother had to run the family finances, but because everyone knew he was honest) he began keeping records of the commies' activities and soon had enough on them to turn them in. Off he went to the Los Angeles headquarters of the AFL and furnished evidence of what they were doing. They were kicked out of the union, which was bad enough. They also were unable to gain employment elsewhere: They were Jews and there was plenty of anti-Semitism around in L.A. those days. There was even more anti-communism, frequently violently so. Suddenly being unemployed, probably for a long time, this didn't rest too well with them. They had families to support, doctor's bills to be paid, and so on. But rather than renouncing their ideology to get their jobs back, they chose to denounce my dad and make life miserable for him and his family.

Letters and phone calls, at all hours of the night, would come in, threatening our lives. My friends from communist families deserted me and whenever possible would beat me up, for what my father had done to their father. This went on for years. It left me with a long-lasting and intense revulsion for communism and communists, especially the Jewish kind. Even today, when the

biggest joke in America (or Russia) is to be a communist, when I meet up with liberal Jews whose behavior reminds me of the Jewish commies of my childhood, I bristle. I find myself disliking them intensely, even though I find myself more and more tolerant of their views. I feel a sense of shame for this behavior but I simply can't help it.

Largely due to this childhood experience, it was easy for me to adjust to RAND. The moral underpinnings of my work were entirely clear and, now out of uniform, I felt comfortable with the military, which traditionally had hated the Bolsheviks. I was willing to let bygones be bygones and wound up having more friends in the professional military than among my civilian colleagues at RAND. (I remember becoming very good friends with one of the finest people I've ever known. Kenny Gallup, an Air Force colonel who came from a small town in west Texas, probably had never seen a Jew before he joined the military but had been brought up to dislike them. They were pushy, clannish and had an obsession for money. But he liked me, and vice versa. Although he knew I was Jewish, he couldn't restrain himself and on occasion he would complain about other Jews who fitted his stereotype. I would twit him and reply that there were any number of gentiles he didn't care for, for the same reasons. "Kenny", I would say, "thanks to gentiles like you I can tell my Jewish friends that some of my best friends are anti-Semites." There was also my good friend Jack Morse, an honorable man, a career naval officer raised in a small town in South Carolina. Jack saw Jews about the same way Kenny did, but never knew I was Jewish — despite my name and definitely Semitic features. One day, at a social get together, it came out over martinis that I was a Jew. Jack was dumfounded and confronted me angrily, feeling betrayed over finding this out. "You're Jewish?", he said accusingly, "Since when?" "Since King Solomon's time", I replied. He still couldn't quite believe me.)

In its early days, RAND was the greatest institution of its kind on earth. This is not meant to be an opinion. It's a fact. It contained some incredibly bright people, the brightest being a college friend of mine, Herman Kahn, whom I brought there and was to have a huge impact on U.S. defense thinking, especially on matters of nuclear war. (If, before he died, you read the newspapers, watched TV news and talk shows, he was a great favorite of Merv Griffin, and even read girlie magazines, you saw Herman, all 350 pounds of brains and black humor, explaining to ordinary folks how we could fight and win a thermonuclear war against the Soviets, and in no time at all go back to where we were.) Besides Herman, there was a mishmash of scientists, engineers, mathematicians, economists, political scientists, social scientists, military historians, you name it, whose job was to challenge the stultified mentality of the military brass who already had begun planning for the next war on the basis of the last one, even though we had entered the Nuclear Age. Their experience in nuclear war was zero.

For that matter, RAND's experience also bordered on zero, but their intellectual arrogance convinced them this was no major handicap. Many of them were brash, supercilious, and abrasive, who were so impressed with their ability to analyze complex problems that they blinded themselves to the political facts of life that drive a huge military bureaucracy. This arrogance produced a megalomaniacal belief they could turn a sow's ear (the insanity of nuclear war) into a silk purse (an understanding of nuclear war and what could be done to fight and win one.) As it turned out in the real world, the efforts of

these people became irrelevant. Unfortunately, however, in the world of Washington's national security process their views and methods were accepted and formed the basis of a policy and strategy that has cost this country hundreds of thousands of military casualties and trillions of dollars that could have been misspent elsewhere, but for a better cause.

Despite all this, I would repeat that at its beginning and for some years after that RAND was invaluable, if for no other reason that it forced people in government to think more seriously about these nuclear issues. That's always worthwhile even if the result has little to do with reality, whatever that is in the never-never land of nuclear war.

In the very early days, RAND's main emphasis was on technological innovation for new military systems, most of it having to do with nuclear war. From these technical efforts came some startlingly new ideas that led to such things as satellites, intercontinental missiles, new radars, and even neutron bombs. Much of this proved to be of great value to the military, and to humanity as well (like weather and earth mapping satellites, satellite communications, space exploration, and so on).

Of secondary emphasis at the beginning, but overwhelmingly dominating RAND's importance a decade later, was a new mathematical process for resolving complex military operations called systems analysis. As for those who played the major roles in this game, having watched them, argued with them, and denounced them from the start and seen the results of their chicanery, a pox on them. They developed and succeeded in selling to the Pentagon a system for running the Defense Department that defied logic and rational scrutiny, and has done incalculable harm to the country. The ideology underlying this system was to deter nuclear war by producing conventional forces that could deter conventional wars, which happened anyway because they've always happened. As for using tactical nuclear weapons directly in defense of our allies, this was ruled out because we *knew*, despite evidence to the contrary, the Soviets had no plans for using these weapons against us, even if it meant losing the war. Nevertheless we spent billions of dollars on these tactical nuclear weapons but never figured out a credible strategy for using them. (The Soviets did.) We also never figured out a credible strategy for using strategic nuclear weapons, fighting and winning a strategic nuclear war, should deterrence fail. Strangely enough, despite the unspeakable consequences, we decided the Soviets had a credible strategy for using them and if push came to shove, would use them to win. *In other word, our policies, based on the influence of these systems analysts, held a willingness and readiness to submit the American people to the unspeakable horror of nuclear war while doing everything possible to spare our allies from it.* Sounds crazy? I think so. But it's true. That's been the basis of our nuclear policies for the last 30 years.

The first major RAND systems analysis had to do with providing guidance to the Air Force on what characteristics the next generation of strategic bombers should have. Should they have jet or propeller engines? How high should they fly and how fast? How large should they be? What range should they have? And all that. To answer these questions in a rational rigorous fashion, it seemed necessary to develop a model of the war, starting with our national objectives (which called for RAND's policy experts to be in on the act) and then, using the new super high-speed computers, calculate how the war

started, progressed and ended and what it cost. This called for inputs from RAND's economists, experts on the performance of offensive and defensive systems, experts on nuclear weapons and their effects, Sovietologists, you name it. The whole idea seemed so radically new and intellectually replete compared to the seat-of-the-pants judgment the Air Force generals leaned toward, based on their World War II experience, that it seemed absurd and even downright insulting to challenge its veracity. How could a general who knew how to fly a bomber and direct other pilots into battle in a war that hadn't the slightest resemblance to what nuclear war might be, go up against a bunch of PhDs who presumably knew far more about the various facets of nuclear war than he? How could he pit his unfounded judgment against their wealth of knowledge and ability to use fancy computers to handle the most complicated mathematical equations imaginable?

The fellow at RAND in charge of this bomber study was a mathematician by the name of Ed Paxson. Ed had helped analyze air force operations in World War II and was an absolute genius in putting together all the components of the nuclear bomber study in the form of complex mathematical equations and then handing them over to the computers. Not only were there no generals in the Air Force remotely capable of doing something like this, there wasn't one who could even understand it. Nor were there any bright colonels and majors who could. So when Paxson finished his study and began briefing it to the generals, it was so overwhelmingly persuasive that these poor guys looked like they had been hit on the head by a two by four. However, some of lesser rank in the audience, while equally stunned, had more combat experience than the generals, who were too busy planning raids to be able to fly in them; and were more aware of some of the human aspects of the problem.

One of them, in a briefing I attended, a friend of mine, Colonel Jean Jack, pondered what Paxson had said, reflected for a while, and asked a question that seemed not only stupid but downright unpatriotic. "How many bombardiers", asked Jean, "will actually be willing to push the button at the right time that releases a bomb 10 or 20 times more powerful than the ones dropped on Japan?" Paxson, who came from a military family and dearly loved the Air Force and its heroic history, looked at Jean accusingly, as though he ought to be discharged from the service, or even court martialed for asking such a traitorous question. He had assumed that every bombardier would promptly push a button. However, he made no attempt to answer Jean's question. He couldn't. Nobody could, then or now.

Yet Jean had tossed a fly in the ointment that couldn't be lightly dismissed. What would you do if you had the lives of a few hundred thousand women, children and elderly at your finger tip, in a war you didn't understand in the slightest and maybe didn't even believe in? Think about it, it's not an unfair question. Nobody in the audience had the wildest idea how many fellows would push the button to hit the target, but what that number might be might have a profound effect on the war. It certainly could have a profound effect on the efficacy of such analyses, whose results depend on assumptions that may be wildly in error.

Some years later at RAND, I heard a preview of a systems analysis briefing being prepared for the Secretary of Defense. This entailed fighting a far more complex nuclear war than the one Paxson fought, involving far more assumptions. The way it worked out, with all the equations and computer

calculations, was that the war could go on for weeks or months before we finally won. (You're not going to give advice to the Secretary of Defense on how to lose a war.) One of the fellows in the audience was Fred Ikle, the head of RAND's Social Science department, which concerned itself with the political and societal side of war. I knew and respected Fred as a very knowledgeable person, although our views on employing nuclear weapons were poles apart.

At some point in the briefing, I had had my fill. I got up and walked out, which was noticed by a number of people, including Fred, who could tell I wasn't impressed. Later that day he called me. Knowing what I would say, he asked the question anyway: "What did you think of the briefing?" I gave him my unvarnished opinion. He was disturbed enough by what I had said to request I put it down in black in white and write a memo to him. I did, my main reservation being in the form of a question: "What are the American people, who have learned to dread nuclear weapons and nuclear war, going to do while this war, involving thousands of hydrogen bombs bursting all over the place and inundating the country with radioactive contamination, is going on? Are they going to sit in their living rooms (precious few effective shelters existed and most people, including me, had no idea where they were and probably wouldn't have used them if they did know) and watch the war on the NBC Nightly News?" My answer, in the memo, to this question was *no*. Most likely they would go collectively berserk and demand the war be called off immediately, regardless of the consequences. I received a memo back from Fred which consisted of one brief sentence: "You have hit upon the Achilles Heel."

At least on this one occasion, Fred, a very ambitious young man wanting to make his mark in the government, was able to rise to the occasion and part company with the RAND party line. However, when his ambitions finally paid off and he got himself some highly influential positions in Washington — Director of the Arms Control and Disarmament Agency and Undersecretary of Defense for Policy; needless to say he went along with the systems analysts. Being a very perceptive person, Fred could have dissented and bucked the System, exposing it for what it was worth. Had he done so, his tenure in Washington would have been quite brief. He would have been eased out of a half-acre office, a limo, and invitations to the Georgetown and Embassy Row cocktail circuit. Less enjoyable but more ego gratifying, he would have been barred from the White House. His departure would have been duly noticed on page 17 of the Washington Post, unless he wanted to go public with dissent, embarrassing a government agency the Post wanted to embarrass. He surely could have gotten a prestigious professorship at some prestigious liberal university and faded into the sunset, but to each his own.

Whatever you think of our security policies, please don't go getting any ideas that the best and the brightest, and Fred was one of them, can contribute meaningfully toward helping resolve these issues. They get resolved by the same process that created them in the first place — politics, not rational analysis. They get resolved for strange and mysterious reasons having to do with the behavior of real people who understand the real world; not highbrows grinding out study after study and analysis after analysis. Sometimes the process seems to work and we manage to avoid war. Other times it doesn't and we get ourselves into stupid wars, and we may yet get into the most stupid one of all, nuclear war, if we don't come to our senses.

Shortly after the war was over it became clear that nuclear disarmament was not going to work, at least not for a while. This sad fact of life compelled the U.S. government to begin focusing on what kinds of atomic bombs should be developed and for what purposes. The controlling agency for such developments was, naturally, the Air Force. Not only had it ended the war by bombing Hiroshima and Nagasaki, but for a number of technical reasons, it was the only military service that would have an efficient nuclear delivery capability for some time to come. For obvious but not necessarily correct reasons, since the enemy was now the Soviet Union, which most Americans now feared and detested, the major thrust was toward bigger and bigger nuclear bangs to bomb big Soviet urban-industrial complexes and push the commies back into the Stone Age.

The most efficient weapon technology at that time was that employed in the Nagasaki bomb, the Fat Man, which was some 5 feet across and weighed about 10,000 pounds. This technology dictated that the larger the bomb the bigger the bang, with the least expenditure of our highly limited stockpile of fissile material. For these reasons, it was easy for the Air Force to have a virtual monopoly on these weapons. With the Navy and Army out of the act, the Air Force got the lion's share of the defense budget, which thanks to the atomic bomb could be reduced substantially. This was fine with the Congress, which now that peace was afoot wanted more money for domestic spending. As a consequence, the Air Force's Strategic Air Command (SAC), which had the biggest bombers that could carry the biggest bombs, became the most popular military organization in the country. The guy who headed and built it up to the most fearsome proportions, General Curtis LeMay, became a national hero, which he richly deserved to be.

Of course, there were some moral qualms over this policy. After all, we fancied ourselves to be a highly moral nation. Since we were mainly a nation of Christians who more or less professed to hold to the principles of Just War concocted by the early Christian fathers, the idea of repeating on a vastly greater scale what we had done to the Japanese, bothered a lot of people, including some political leaders who were taking flack from their constituents. To get around this problem, which had little to do with morality (we had done far more harm, deliberately, to Japanese cities and civilians with conventional bombing, like firebombing their major cities into ashes, and no God fearing American would dare demand we put a stop to this barbarism, which it was), SAC planners claimed their primary goal was to attack military targets to win a military victory. However, in selecting targets, somehow or another they usually managed to choose those located in the biggest, most populated cities, the closer to the center of population the better.

I knew a fair number of SAC planning officers at that time. When we would discuss this bombing strategy they would get a little squeamish and try and waffle the issue. They didn't have to do this with me. Hating commies as I did I needed no persuasion this was the correct and moral strategy. The one officer who didn't bother to beat around the bush in my presence, for reasons I'll never understand, since he was taking a fair political risk in confiding this in me, was LeMay himself, who told me in one of the most fascinating discussions I've ever had (which was really a monologue, with LeMay pouring out his guts to me on nuclear war): "What I want from you (we bomb developers) is a bomb

that will wipe out all of Russia. That's my number one priority. When you kill enough of them, they'll stop fighting. That's what it's all about."

With this attitude, perfunctorily resisted by the Army and Navy, the stage was set for a monumental battle on nuclear weapon development. What I'm referring to here is the long and bitter and shameful struggle that took place over whether or not to build the hydrogen bomb. Basically this struggle revolved around two great and famous and influential scientists whose animosities against each other badly split the U.S. scientific community and left emotional scars, that persist to this day, in those still alive and there aren't too many.

Countless books, articles, TV documentaries, etc. have come out covering this historic struggle. I don't claim to be aware of all of them by a long shot, even though I was personally involved, directly and indirectly, with what was going on. What I'll bring out here is an accounting of the struggle based on personal observations of the participants: their behavior, their objectives and motivations, and their impact on the decision to make the H-bomb. By definition, since we're concerned with an accounting of just one person who had but limited knowledge of what actually happened and doesn't care to repeat the accounting of many historians because he either doesn't believe them or feels they were duped, by themselves or others, this will be vastly incomplete. On the other hand, as I keep on saying, I'm not writing for the sake of completeness or even precision for that matter. I just want to provide some human flavor to events that can't possibly be humanly analyzed.

Although I didn't feel this way at the time of the H-bomb debate, and I feel a sense of shame that I didn't, for quite a few years, looking backward at what happened and thinking more about the issues involved, I have believed that Robert Oppenheimer, warts and all, was a truly great, loyal dedicated American patriot. I say this never having met him personally that I can recall, but based on observing what he was up to when he was up to it.

Although I had known Edward Teller for some years prior to the debate and was pretty much aware of him as a person, with his set of warts, I felt at that time, and always had, that he too was a fine, indeed a great, American trying to do the best for his country. I still feel that way, although not with the conviction I once did. I feel that way about Oppenheimer far more than I once did.

During the debate, if I had to chose between these two as to who was doing the most for his country, unhesitatingly I would have picked Teller, for mainly the wrong reasons. As of today, I unhesitatingly would pick Oppenheimer, for all the right reasons. I might say that in choosing then and now, I was and still am aware that neither of them have behaved particularly fairly or with intellectual honesty. They both behaved atrociously. However, in matters of love and thermonuclear war perhaps it's asking too much from overly motivated people engaged in such grim struggles of such momentous proportion, to expect them to honor too much of the Decalogue. I doubt that Moses did. I haven't.

Oppenheimer has rightly been called the Father of the Atomic Bomb. His performance, aside from his behavior, at Los Alamos during the wartime years was something to behold. It's difficult to imagine anyone, and I've never met anyone, who could have done a better job at running the lab than he. Although it was the work of many brilliant men, with egos galore and capable of the most childlike (like yours truly) and capricious behavior, in Oppenheimer we had a

man of great wisdom and inspiration, and most importantly, when he chose to behave himself, a diplomat of Solomon-like proportions, when it came to dealing with some of those prima donnas. Almost surely his leadership significantly shortened the time span of the project and probably resulted in the savings of countless thousands of American, and Japanese for that matter, lives had the Bomb come along later than sooner.

Teller's irascible behavior forced him out of the mainstream but not out of the lab, thanks to Oppenheimer who didn't think we should be without geniuses, even those whose enormous egos caused serious friction. As bright and innovative as Teller was, his overall performance during the war left a lot to be desired. He was not content to be part of a team effort (like yours truly) and preferred to work off to the side on new and different and sometime pretty far-out ideas (like yours truly). This caused considerable resentment. After all there was a war going on and most people thought future nuclear weapon concepts should be worked on sometime in the future, after we had finished our primary assignment. Edward's behavior was like a colonel on a planning staff during a military campaign who tells his commanding general that he'd like to plan for the next war. That would be the end of the colonel, who would be demoted and shipped off to some base in the Aleutian Islands.

Oppenheimer, however, realized that guys like Teller, despite their shortcomings, were necessary to have around; one never knows when a guy like that can be worth his weight in gold, which to the best of my recollection never happened with Teller. So an arrangement was worked out where Teller and a handful of like-minded theoretical physicists, willing to put up with his domineering ways, formed a small group dedicated to doing what they pleased, realizing their efforts stood precious little chance of impacting on the project.

The one idea dearest to Teller's heart was the H-bomb. He and a couple of his cronies applied themselves to devising various schemes on designing such a weapon. All of them turned out to be impractical and most of them unworkable. Which never slowed him down in the slightest for reasons we'll never know nor will he. I've known Edward for a very long time and although I've never known him well, one thing about him became clear to me from the very beginning: he was a creature possessed. By what? Again, who knows? Many, if not most, who have read about his life and what he has done, plus those who have known him directly and observed him close at hand and at great length, would say by Satan (which has been said all over the world about me). I wouldn't go along with that and although I have seen Teller give some of the most impassioned statements morally defending his positions, some of which I have found deeply moving and thoroughly convincing, I would not say that the God I've been told exists has had a tight hold on him. If Edward has been possessed by anyone it's been himself. I'd say the same for myself, and I've given you some reasons why, but hardly all of them. I don't know all of them and would be ashamed to tell you if I did.

One day, Teller announced he would be giving a colloquium on his work. Since this was a pretty fascinating subject that held the potential for providing a bang a hundred or even a thousand times bigger than the A-bomb, he spoke to a pretty full house, that included me. In his own dynamic and almost hypnotic way (here was a Jew who had he converted to Christianity would have become a fantastic born again evangelist, *au nucleaire*) he described a particular design

he was convinced would work. (It turned out later it wouldn't, but Edward was the kind of a person who thought in grandiose terms and had little patience for detailed calculation, which he preferred to leave to others.)

The briefing was over, there were lots of questions that Teller handled with aplomb, knowing far more about the subject than most in the audience. Finally there came a question that had nothing to do with whether or not his bomb was feasible. Instead, it was whether it would destroy the world by causing uncontrollable thermonuclear reactions in the earth's atmosphere that would cause it to burn up, plus you and me and everyone else. Teller was on his game, as he always was, and replied that he had estimated this terrible possibility and we were quite safe — by about a factor of ten. Now there aren't too many people who rest comfortably with assurances that mankind's fate, let alone their own, is on the safe side by a factor of ten, although there are millions of smokers, including myself, drug addicts, sex addicts, who take much greater chances than that with their lives, and they know it. Except that they know it won't happen to them, which is why many soldiers, at least as stupid as they're brave, get Congressional Medals of Honor.

Naturally, the next question was: "How accurate is the nuclear data you used in your calculation?" As only Edward Teller is capable of doing, he replied, with a smirk-smile going from ear to ear: "Well, it's possible that the data might be off by a factor of ten." Which way, he didn't profess to know, but I suspect that much of the audience didn't sleep too well that night. (If you're beginning to worry that you might not be sleeping too well from now on, I have to tell you that as it turned out, after careful nuclear measurements and detailed calculations were made, we were safe by far more than a factor of ten. It simply couldn't happen.)

When the war was over and most of the scientists who had worked on the Bomb had returned to peaceful pursuits, many of them banded together to fight for getting these weapons under control and even eliminated. Teller, however, who had developed a hatred for the commies that probably exceeded mine, gave as much of his time as he could spare to keeping our nuclear weapons program going and, in particular, to developing the H-bomb. At the same time, Oppenheimer also was devoting as much time as he could spare to fight this development. While he was opposed mainly for ideological reasons, as a non-professional nuclear planner (every bit as competent as the professionals who had just as much experience in fighting a full scale nuclear war as he did — namely, zero) he believed it was unnecessary and even inadvisable to develop weapons of such tremendously destructive magnitude. He believed our objectives could best be met by improving the A-bomb.

As for myself, blame it on my youth for not having the integrity and depth of character to question Teller, who like myself had become quite close to the Air Force, on his convictions. We had a lot of respect for each other at that time. To keep it that way, since I was deeply wrapped up in the matter, the honorable thing for me to have done was to have sat down with him and asked him to explain, in terms of military assessment, why we needed his bomb so badly. However, I never questioned him or anyone else and blindly took the Air Force's side to help promote this weapon. I should have felt a sense of shame for this lack of objectivity, but this was very early on in my career. Nothing had happened so far to disillusion me or provide any grounds for skepticism. I was

acting like most people do on such issues: In not doing what I should have done I was harming no one. However, looking back, I now feel quite shameful about it. By doing nothing I had harmed myself by demeaning considerably my intellectual integrity which, in large measure thanks to my father, I treasured greatly. However when I reflect back on my life, within the privacy of my thoughts, I realize I've done a lot of shameful things, not so much professionally but in my relationships with people who deserved better.

In searching for allies to support his position, Teller prevailed upon the Air Force to prevail upon RAND to do an extensive analytical study. This took place and I was assigned tasks having to do with thermonuclear warheads, where I could contribute. Oppenheimer and his colleagues, most of whom were distinguished scientists who didn't know from beans about the military business, as RAND claimed it did, already had set about doing their own study. By comparison with the thoroughness and seemingly high analytical quality of RAND's investigation, Oppenheimer's was almost childlike in its simplicity and military naiveté.

As the RAND study progressed, I began to sense that it had started out with answers in hand, answers that Teller and the Air Force expected (and I hoped) to get. Despite my druthers for the H-bomb I became bothered by what I was seeing, for it not only was biased toward the bomb but some of the analytical work had many of the faults and drawbacks I've been complaining about. Let me give you an example which has to be one of the worst cases of naiveté, stupidity, or dishonesty, or all three, I've ever seen.

As you can well imagine, any nuclear bombing study that neglected to target Moscow would be laughed out of the room. (That is, no study at that time; 10 or 15 years later senior policy officials were debating how good an idea this might be. If you wiped out the political leadership of the Soviet Union in the process, who would you deal with in arranging for a truce and who would be left to run the country after the war?) Consequently, two of RAND's brightest mathematicians were assigned the task of determining, with the help of computers, in great detail, precisely what would happen to the city were a bomb of so many megatons dropped on it. It was truly a daunting task and called for devising a mathematical model unimaginably complex; one that would deal with the exact population distribution, the precise location of various industries and government agencies, the vulnerability of all the important structures to the bomb's effects, etc., etc. However, these two guys were up to the task and toiled in the vineyards for some months, finally coming up with the results. Naturally, they were horrendous. (Harold Mitchell, a medical doctor, an expert on human vulnerability to the H-bomb's effects, told me when the study first began: "Why are they wasting their time going through all this shit? You know goddamned well that a bomb this big is going to blow the fucking city into the next county. What more do you have to know?" I had to agree with him.)

The thermonuclear bombing of Moscow was briefed to the RAND staff. Of course there were some questions but there was no serious challenge to their findings. These guys, who were highly respected, obviously had done a very thorough job. They received nothing but accolades, except from me. They may have been brilliant enough, but they also were fools and as it turned out, crooks to boot.

The next day, I called one of them and asked if I could come to his office to discuss the briefing. Fine with him, so off I went. I sat down and asked him a

question: “Norm, how did you decide so exactly where the bomb would explode?” He looked at me as if I were a country bumpkin and explained how SAC calculated its bombing accuracy and he had gotten the accuracy of this particular drop straight from the horse’s mouth. Now I don’t want to bore you with how SAC arrived at planning estimates for the delivery accuracy of its nuclear bombers, except to say that it was a statistical process based on thousands of practice sorties, whose results would be mathematically analyzed to allow estimates to be made of the results of a large bombing campaign; not one bomber flying over one city and one bombardier, with the lives of perhaps millions of Muscovites at his fingertips, dropping one bomb. This I pointed out to Norm, implying that he had gone to all that fuss and bother for naught. His response was that in doing his calculations as a mathematician, he was going by the accepted ground rules. The bombing accuracy he had assumed had been provided to him by others. His was not to reason why.

Okay, so Norm’s bombing of Moscow was a farce, like all the other detailed analytical studies going on. Now I could have exposed this to those in charge of the study. I should have, but I didn’t, which was shameful. Not that I would have gotten anywhere if I did. Nevertheless, on matters so grim one should reveal the truth, or lack of, especially during those days when we took matters like this so grimly. And if you’re wondering how Norm made out, he made out like a bandit, which had me feeling even more ashamed I hadn’t spoken up. As for Norm, I won’t say he was shameless in not coming clean; he was only human. The real shame was mine.

As the RAND study progressed, I became bothered more and more over its gross intellectual dishonesty. I was even more bothered this could go on in an organization I still venerated because of the freedom it gave to its staff, to do almost anything it wanted, as far out as some of it may have seemed, like my efforts based on radiation schemes. I still felt, however, that H-bombs were necessary and remained with the study doing the best I could. On the side, however, my conscience began building up and on my own I decided to learn more about the non-nuclear facets of the problem — like how far a bomber could travel with how large a bomb weight, how large other Russian cities besides Moscow were and what sized nuclear bangs were required to wreak havoc with them, and so on. With this reasonably hard information in hand, I then began doing some back of the envelope calculations to check on the elaborate RAND calculations. To my dismay, but hardly surprise, they turned out to be way off base. By comparison, the findings of the Oppenheimer group were far more reasonable, despite their own biases. Everything in my simple-minded assessment and the even more simple-minded Oppenheimer calculations showed clearly that we could most effectively accomplish our strategic objectives, even if that involved the direct bombing of urban populations, by continuing to improve A-bomb technology, which we understood better than H-bomb technology, which we barely understood at all.

I went to see my boss at RAND, who happened to be co-director of the H-bomb study and expressed my deep reservations over what was going on. I explained why, suggesting that something be done to correct the situation. I thought it was a sham, besides being an out-and-out intellectual travesty. He wasn’t very sympathetic to what I had to say, although he gave no reasons why. Looking back, I shouldn’t have expected any other response. He was very close to Teller and pretty much under his thumb. To say nothing of wanting to be on

good terms with the Air Force which happened to be paying his salary and could make or break his future. At the time, however, I was terribly shocked to see an organization I admired so greatly show such willingness to depart from objectivity to please the customer.

Although I should have realized then that it was pointless for me to go on with my objections, being the stubborn cuss I was I made a date to see RAND's president, who highly respected me, to express my dissatisfaction. Unlike my boss, he was in no mood to beat around the bush. He let me know that I was welcome to do at RAND whatever I wished, a great compliment. However, it was RAND, not me, who had been asked to do the study. If I didn't like the way it was being done I was welcome to pull out, which I wanted to do anyway, and proceeded to do. As for the study, he made it very clear that some of the very best analysts at RAND had been involved and he didn't see why he should accept my individual assessment, intellectually primitive compared with theirs. They were the ones assigned the job of reaching conclusions; my job was only to help them in one narrow area of an extremely complicated problem.

I got the message. I also was confronted, at least in my mind, with a moral dilemma; namely, whether, as a concerned American to register my reservations outside of RAND, including going to the Oppenheimer faction, as opposed as I was to their ideological views. Had I done so, I might have caused a big ruckus resulting in the exposure of the RAND study outside the Air Force. For example, had the Navy discovered how egregiously wrong the RAND study was, it could have opened up a new can of worms and the Air Force now would be fighting on two fronts in its defense of the H-bomb. In those days, the bitterness between these two services on what nuclear roles each should play was beyond belief, the skullduggery beyond imagination. The Air Force simply wanted the Navy to keep the shipping lanes open and stay away from the strategic bombing role. One way to make sure this happened was to convince the government that these huge bangs (10 or 20 megatons, or even more) were absolutely essential, for if they were the warheads that produced them would have to be so big and heavy that only huge SAC bombers could deliver them. (More than one Air Force officer in the Pentagon wrapped up in this battle had privately complained to me about this, but had they spoken openly about the hanky panky going on in their service, their careers would have gone out the window.) However, I wound up doing nothing but sulking for a while, in disillusionment and disappointment. I also wound up terribly ashamed of myself, as one who felt so deeply about his country, for not standing up and being counted over so important a matter. (Or was it?)

As for the RAND study, it was madly embraced by the Air Force, whose Secretary, Stuart Symington, (who I later got to know as a Senator and who became one of the prime promoters of the neutron bomb, which the Air Force detested) was an old pal of President Truman from Missouri days. Symington had it briefed to Truman who took to it very kindly. Now I wouldn't go so far as to say the RAND study played a decisive role in Truman's decision to allow the H-bomb development to proceed. That decision was made long in advance for purely political reasons. However, it did make a sizable impact on the issue, not in helping provide a better basis for making the decision, but in providing the politicians — in and out of uniform, elected and appointed — with more ammunition to justify a decision already made. To many it was grossly immoral. To me it was the right one, for the wrong reasons.

It was right, and I want to emphasize, *right at the time*, because we were in a world when the communist challenge was increasing by the day. The Soviets had shown no serious interest in curbing nuclear weapon development, and aside from whether we needed 20, 10 or 1 megaton bombs, or even less, the most important factor was that if we didn't pursue such developments, the Soviets would, and they were. Not that they would be masters of the world if they built such bombs and we didn't, but we feared they would. The fear may have been a myth but under such circumstances myths become all-important facts. A more realistic but less important factor is that time after time we have discovered that technological breakthroughs in one area can be applied to other areas. This is precisely what happened with the H-bomb technology, developed to provide 20 megaton bombs, that actually went into the stockpile although we needed them like a hole in the head. In short order this new technology became applicable to a whole spectrum of nuclear weapons, dramatically improving their efficiency. It also proved applicable to the neutron bomb whose yield is less than one ten-thousandth that of the H-bombs RAND, Teller, and the Air Force wanted, and whose purpose is to spare cities and their inhabitants rather than wiping them out. This may not be the kind of progress you care for, although others do, but to each his own. However, apart from one's feelings on nuclear weapons, this so-called "thermonuclear breakthrough" increased the efficiency of our nuclear warheads to a degree where we were able to save countless billions of dollars in having more efficient and less costly weapon delivery systems. If you don't like bombs you might like lower taxes. Most of us do.

It was wrong, as I've explained, because so blind were the passions, on the Oppenheimer side, on the Teller side, that practically nobody took time to figure out what this business was all about. Not that it would have done much good to do so, for it wouldn't have made that much difference one way or another. I've already explained somewhat why this is so. I'll explain even more later on. Ironically, as it turned out, for reasons that in retrospect nobody can explain, after Teller had won, the arguments of Oppenheimer became reflected more and more in our strategic stockpile. Today the yields of our strategic bombs and warheads are a hundred-fold less than what was deemed absolutely essential 40 years ago. The stockpile still is horrendous beyond compare but it's not horrendous to a degree that allows scientists to claim its use will wipe out the earth.

There's a profound lesson to be learned about the great H-bomb debate; that it was a farce. I'm sure (or am I?) that many scholars now understand how farcical it was, but you'd never know it from their writings. However, whether generals, admirals, congressmen, and Presidents have grasped this, I wonder. In fact, I don't wonder too much, for as I observe the passing scene with arguments on the Stealth bomber, the MX missile, and all that nuclear business that is supposed to mean so much for our survival, I don't think they've learned a thing. They still carry on in the same way, fighting over expensive nuclear weapon systems they don't understand, to be used in a war we don't know how to fight.

One of the guys who first began to see through this charade, was David Lilienthal; the first Chairman of the U.S. Atomic Energy Commission (now called the Energy Department) and a prime architect of our first nuclear disarmament proposals. Lilienthal, a U.S. born Jew, a great idealist, and

visionary, had a profound dislike for nuclear weapons. He had an extreme dislike for weapons which emphasized radiation which I witnessed first hand when, as AEC Chairman, he came in inexcusably late and walked out inexcusably early, on a meeting involving the military applications of radioactivity. His repugnance for the subject was something to behold.

A decade or so after watching the passing nuclear scene, during which he generally sided with the Oppenheimer faction, he began having second thoughts. In a speech at Princeton University in 1961, to the horror of his former comrades in anti-nuclear arms, with whom he had worked in opposing the H-bomb, he pointed out that our nuclear policies had been established not on “everything the human race had previously learned about man’s behavior, about war and peace, about our institutions, about foreign policy, about military matters, about science”, but on “myths” stemming from a “great misapprehension” that nuclear weapons must be considered apart from human beings and how they conduct their affairs. He was damned by those who formerly had venerated him and ignored by everyone else, who hadn’t the wildest idea what he was trying to say. But he spoke the truth, profoundly so. The trouble was, and still is, that few of us, and nobody holding political power, in the real world, could grasp and deal with this profundity.

Summing up the H-bomb debate, I can only observe (and I’m hardly excepting myself) that analysts were never able to analyze it, strategists were never able to strategize it, and our political leaders were only able to politicize it, which is how the debate was resolved. As for our current predicament, where the nuclear superpowers seem to be outdoing each other in proclaiming the abolition of their nuclear stockpiles, while other nations are beginning to build up theirs in earnest, as one megalomaniac I’ve got my own ideas as to how to grapple with the problem, which I’ll talk about henceforth. Aside from my megalomania, however, I wish that those holding political power, who can do more than carp from the sidelines like myself, would take the time to think hard about what Lilienthal had to say. They might try looking at these issues as intelligent human beings, which they are, but haven’t had the political courage to behave like them.

Okay, so back in the good old days we were going to barbarically bomb the hell out of Soviet cities. I’ve just discussed the H-bomb debate and how utterly ludicrous it was. Perhaps most ludicrous of all was that our understanding of H-bomb technology at this time was so sadly lacking that the bombs used in the RAND study were mainly spun from whole cloth. The designs had come from the incredibly fertile mind of Edward Teller. Not only were these theoretical estimates impossible to validate but there was little in our actual testing experience to lend credence to them. So here was RAND doing mathematical analyses that provided answers to five or six significant figures where one of the most important inputs, the characteristics of the bomb, wasn’t even known to one significant figure. As I’ve said though, this study was little more than an intellectual hoax to support a political decision.

To be sure, SAC wanted the H-bomb; more accurately it wanted a bomb vastly more destructive than those currently in the stockpile. However, this involved a development whose fruition and what the product might look like was impossible to predict at that time. What we had going for us at the time were atomic bombs of the Nagasaki type and SAC’s immediate requirement

was not to figure out the best H-bomb to put in its bomb racks but the best A-bomb. While they were fighting the H-bomb battle they were faced with the immediate problem of what new A-bomb should enter the stockpile. A decision had to be made very quickly for all kinds of practical reasons.

At this juncture, in contrast with the H-bomb, we had a wealth of experience in calculating and testing A-bomb performance. This enabled the scientists at Los Alamos to responsibly provide the Air Force with a whole potful of choices, involving different sizes and weights and how much fissile material (which was still in very short supply) these bombs would need, and, of course, different bangs produced by these different bombs. In theory, this pretty concrete data on A-bomb characteristics offered the opportunity for a more meaningful analysis of the problem.

Needless to say, the Air Force turned to RAND for help. The job was given to the same guys who had directed the H-bomb study. As you might guess, I was not invited to participate, nor did I wish to after my previous souring experience. So I happily continued doing whatever I was doing while these guys plunged into the study.

Time went by and the deadline for the study completion came closer and closer. However, there was a big problem; RAND's study had become so complex mathematically that it couldn't possibly be completed in time to meet the deadline. Panic broke out, at RAND and in the Air Force, particularly at SAC which was most concerned with the matter.

One day my phone rang. It was RAND's president; would I please come to his office. When I arrived he proceeded to tell me of the difficulties they were having. He asked a special favor of me; Would I please undertake a quick, highly abbreviated study so we could at least have some sort of answer in time for the deadline. In the meantime, the ongoing study would continue and whenever it was finished be presented to the Air Force. I was to decide on how to do the study and he offered me all the assistance I felt I needed.

As unpleasant a thought as it was, I accepted, out of loyalty to him and to RAND, even though my conscience told me that I would be up to some real chicanery and wouldn't believe my answers one bit. As for assistance, I asked two friends of mine for help — one a mathematician who was familiar with these bombing campaign models, the other a fellow who was RAND's foremost expert on SAC bombing accuracies. Adding to this my knowledge of bomb prospects, I thought we had enough manpower to do the undoable.

It took us a couple of weeks or so to complete the job. It could have taken half that long, had I not gotten into an intense argument with the mathematician. He wanted to do his job the mathematically elegant way he had been doing it, to keep his professional integrity high. As for the facts of life surrounding the problem, he couldn't care less. To solve this impasse I finally went with him to see the president, who convinced him that because of the urgency he ought to cut a few corners in his calculations and that he could rest assured his integrity would remain unpugned. With that roadblock out of the way we finished up in short order.

Except for a few who were so impassioned with their analytic prowess and were determined to get God's truth off to Washington to save the country (who I might say were the most effective members of RAND in impacting on the Washington scene, despite some glaring dishonesties and biases, who would go around end at the drop of a hat) the RAND rules were that before a study left

the building it had to run the gauntlet of critiquing by the professional staff. Fair enough, and I braced myself for what I knew would be an onslaught of criticism and condemnation for the overly simplistic approach I had taken. Sure enough, I got it, but good! Now I'm as sensitive as the next guy to being criticized, especially the way very bright people, far brighter than myself, can go about it. I must say that it wasn't easy for me to stand there and take it, even though I was also critical of what I had done, but for different reasons. I can't describe how uncomfortable I was being raked over the coals that way and I returned to my office in a foul mood. I was certain that my study would be rejected.

The phone rang. It was RAND's president. Would I please come to his office. When I arrived, two others had come in before me, my boss and the analyst who had gotten bogged down in the original study. Both of them, of course, had been scathing during my briefing. They had come to the president's office to urge that my study not leave RAND, it would only cause trouble if it did. To my astonishment, the president, while not exactly taking my side did not take theirs and explained his predicament. He had promised the Air Force, who held RAND's budget, he would deliver a study on schedule. He thought mine ought to get out and was prepared to take his chances on whatever reception it might get. I was flabbergasted, after what I had gone through with him over the H-bomb study. The other two were mortified, especially my boss, but weren't inclined to argue with the president. However, they were hopping mad at me, a young punk (I was 28) with no academic credentials to speak of (they both had PhDs from prestigious universities) and no professional reputation (theirs were excellent). I told myself I faced an uncomfortable future at RAND, especially in the remuneration area, considering my boss's aggravation. At any rate the show was going on the road and I began getting very apprehensive. I dreaded getting up in front of others to speak, especially people I didn't know.

The first stop was to be at Omaha, where SAC's headquarters were based and where General LeMay held forth. Worrying I might get out of hand and say things I shouldn't in front of all the generals and colonels, my boss decided to come along with me, to make sure I minded my P's and Q's.

"Sam", said one of LeMay's deputies, who had been assigned to introduce me to LeMay and his staff, "General LeMay is a very busy man and I'm surprised he is taking the time to attend your briefing. However, if he gets up and leaves after a few minutes, don't take it personally. He does that all the time. If we think the briefing is important enough to be summarized for him we'll do it." Which made me even more apprehensive. I resigned myself to a debacle I knew my boss would revel in.

Okay, I get my introduction, go up to the podium and start going through my song and dance, looking only at LeMay who was looking dourly at me with a cigar clenched in his teeth. A few minutes go by. LeMay is still sitting there, cigar still clenched in teeth. About three-quarters of an hour later, I'm finished. LeMay is still sitting there, cigar still clenched in teeth. I stand there, waiting for some questions I figured would come from LeMay, for whom the briefing was primarily intended. No questions. Nothing, but a complete silence while I'm standing there wondering what to do.

Finally, LeMay gets up, takes his cigar out of his mouth, turns around and addresses his staff.

“This is the first person from RAND who’s come here who’s shown any understanding of what our business is about. This is the first study I’ve seen that shows a real understanding of our problems and what has to be done about them. I accept his findings and recommendations and I intend to move on them”, he says.

I’m standing there in stark disbelief. My boss looks like he’s been hit by a ton of bricks. LeMay continues.

“Mr. Cohen has come here today and told us that our bombing accuracy is not what you’ve been telling me it is. He’s told us (which is what my bombing expert, Jess Marcum, told me) that we’re doing a lot worse than we’ve been telling other people. He’s explained why (which is what Jess explained to me) and I agree with him. I’m telling you that starting right now improving our accuracy is going to be our number one priority and I’m expecting results”, he said. Then he went on berating them a while longer, and walked out.

I’m still standing there, figuring that now that LeMay has had his say, I’ll be bombarded with questions by his staff, wanting to know more about what I’ve done to cause LeMay’s castigation. There were no questions, there couldn’t have been any. If the chief liked the study, they weren’t about to probe for flaws. They got up and walked out. I sat down, wondering what to do next. My boss ran out of the room to the nearest telephone to call RAND’s president, to tell him what happened. When I got back to RAND I found a salary hike waiting for me: my monthly paycheck had been doubled, from \$300 to \$600. I bought myself a new car.

From that time on, my boss never had an unkind thing to say to me. As for the systems analysts at RAND, they never had a kind thing to say. They should have. Because of my success with LeMay, RAND’s stock with the Air Force shot up, along with their job security.

Now maybe you’re wondering why LeMay was so pleased with what I had done. It was hardly because I had told him his bombardiers weren’t doing a good job. It wasn’t that my candor pleased him, although he was honest enough to appreciate it. Rather, it was that I told him that the bomb SAC required happened to have the biggest bang Los Alamos could produce. LeMay liked big bangs, the bigger the better. That was it.

As to why I recommended the biggest bang, this came almost solely from Jess Marcum’s estimate of SAC’s bombing accuracy. In fact, the most honest study I could have conducted was to leave out the systems analyst, take Jess’s estimate and performed the study on half the back of an envelope; and gotten the same results. That, however, was something RAND never would have stood for, for it would have shown how fraudulent their analyses were.

Before leaving SAC and their zest for big bang bombs, allow me to relate a story on this subject, to give you an idea of the gross intellectual dishonesty that went on in the military those days.

One day, back around the time I briefed LeMay, a group from the Pentagon visited SAC for the purpose of exchanging data and methodology on calculating bomb yield requirements. SAC had its own team of analysts to evaluate its performance and establish requirements. So did the other major Air Force commands. I hate to say this, but my experience with these analysts was that they were little more than whores dedicated to proving the predilections of their commander, (The RAND analysts were dedicated mainly to proving their own predilections, or sometimes those of the Air Force if this were necessary to

keep RAND's budget up.) As for the Pentagon analysts, they were mostly bureaucrats who held their fingers to the political winds of the Defense Department to see which way they should go. At that time the wind was blowing both ways, and all they had in mind was to take SAC down a notch, to enhance their own standing.

Supposedly to get a better idea on how SAC approached the problem, they posed a hypothetical bombing example to the SAC analysts, involving a non-existent city of a certain size and physical makeup. How many bombs of what bang would be required to produce a specified level of damage to this city, they wanted to know.

The SAC analysts got to work. They put the Pentagon query into their mathematical model, pushed some computer buttons and out came the answer. To produce this level of damage would require three bombs whose bangs were almost ten times that of the bomb dropped on Hiroshima. The Pentagon group now confessed that this non-existent city actually existed. It was Hiroshima, before the Little Boy bomb was dropped on it.

Now you might think the SAC analysts would have been embarrassed to tears over this disclosure. They might want to change their methodology. No way. Nothing so much happened. They continued on their merry ways to satisfy LeMay; the Pentagon analysts went home and spread the story around. But nothing happened; the nuclear requirements business remained business as usual, with LeMay continuing to have his way. Sounds a bit disheartening, doesn't it. Well cheer up, the show still goes on, with different players and more refined computers. Nuclear weapon decisions are still made in the same old inexplicable manner. And we've managed to avoid nuclear war. What more could you ask for?

For all these reasons, SAC was able to monopolize the U.S. nuclear weapon stockpile, getting for its bombers bombs with the biggest bangs, consuming the bulk of our still limited stockpile of fissile material. It looked like this would go on forever. However, once the AEC began testing H-bombs it made progress at such a rate, reducing the size of the warheads, that the missile boys could get in on the act. Thanks largely to LeMay's influence, if some new kid on the block wanted to get into the strategic arena the buzzword for selling your product was *megaton*. If you couldn't deliver a megaton yield, you couldn't play.

One new kid was the Navy which had gotten permission to develop nuclear powered submarines that could roam undetected under the oceans and launch nuclear ballistic missiles at communist countries like Russia and China, who we were hopping mad at for their role in the Korean war. This program, began by Admiral Hyman Rickover, dubbed Father of the Nuclear Submarine, (a Russian born Jew and one of the most obnoxious human beings I've ever met) got under way in the early 1950s. To determine what characteristics the system should have, a huge study group was set up in Washington to do the appropriate analysis. At that time I had left RAND and was working for the Lockheed Corporation, that very badly wanted to develop and produce the missiles, named Polaris, for the submarines. To get in on the ground floor they volunteered their technical and analytical talents to the study, including me because of my nuclear warhead background.

Déjà vu. As the study progressed, I began to sense more and more I had been assigned to the equivalent of the former RAND H-bomb study: the results

had preceded the study and the analysts were coming up with answers that seemed far out of line with reason. This was especially true in the nuclear warhead area, where I got the idea LeMay's invisible hand was directing the study. In my own irascible style I began arguing with these analysts, to no avail. So again in my own irascible style I went to see the head of the warhead group, complaining his boys were coming up with an unreasonably large yield. I proceeded to tell him that not only was this unrealistic, but would result in requirements for excessively large missiles which in turn would call for very large and very costly submarines, at the taxpayers' expense.

This fellow, Deke Ely, a Navy captain, couldn't have been more forthright in responding to my complaints. He agreed with everything I had said and admitted, with a candor I've rarely seen in a senior officer under political wraps, it was outrageous. Then he explained the facts of life to me.

"Sam", he said, "I can't honestly disagree with you. You're right and I really appreciate you coming here. The trouble is that in this town what's right is wrong and what's wrong is right; and what's right for this study is what the Navy wants to come out of it. The Navy wants a megaton warhead, because that's the name of the game in the Pentagon. If we were to propose a system to the Joint Chiefs that had a significantly smaller yield, we'd be laughed out of the room. It just won't fly. If you want to leave and go back to your regular duties, I'd hate to see you go, but you'll be better off. I'm in a different position; I can't leave and I can't put out results the Navy doesn't want. If I do, that's the end of me."

I told him I understood and went back to Lockheed and worked happily — for a while. I never saw Captain Ely again or followed his career, I suspect he retired as a captain. He was too honest to be an effective political operator which in most cases is necessary to rise to flag officer grade.

I've been reminiscing, not too happily, over some of my experiences in the early development of our nuclear weapon stockpile. I've been discussing how we were going to nuke the enemy, but I've said practically nothing about the enemy. My focus has been on our side and how our nuclear analysts, supposedly understanding our military capabilities, which they didn't, calculated what kinds of warheads we should build. In so doing, I've ignored another class of analysts whose role in planning for nuclear war is perhaps most critical of all. I'm referring here to the U.S. intelligence community and how they evaluated the nuclear threat against us.

If you're planning for a nuclear war, it follows logically that you have to have an identifiable enemy. In the early days that was easy enough, *the* enemy was the Soviet Union. Fine, but to do good planning you have to know something about the enemy — namely, you have to have good intelligence. In the nuclear area we never had, and despite the apparent opening up of what used to be the USSR, where we're given guided tours of their nuclear facilities and shown nuclear missiles being carted off for destruction, I'm suspicious we still don't. However, I don't want to dwell on the current situation lest I be made out to be an unrepentant anti-Communist. So I'll dwell on the past, which I know something about. Perhaps some of the things I'll have to say about our intelligence capabilities may arouse some suspicions in you that my current suspicions aren't necessarily those of a paranoid.

As I've said, a major factor driving the U.S. H-bomb decision was that the Soviets might get it first, which a lot of us assumed would be awful. The Air Force understood this very well and directed its Intelligence directorate to look into Soviet activities on thermonuclear weapons. A study was performed. When it was finished, I was given all sorts of fancy security clearances, to go over it with them. I suspect the main reason for my invitation was due to my success with General LeMay, my stock was pretty good and I was on record as favoring a high priority for the U.S. H-bomb development. So off I went to the Pentagon to be briefed.

I sat through the briefing, given by an Air Force colonel and some college professor consultant. It quickly became apparent that neither of them, despite their access to all this hush-hush intelligence information, had the wildest idea of what the Soviets were up to. In fact, they didn't have the wildest idea on how to make an efficient workable H-bomb, U.S. or Russian. At this juncture the so-called "thermonuclear breakthrough" had not been confirmed, and even if they had given the job to Los Alamos they still wouldn't have gotten any meaningful answers. Nevertheless, a horrendous Soviet H-bomb was described to me. It was so technically outrageous that even I, not all that expert in H-bomb technology, could tell it had been trumped up to please their superiors.

I was appalled and told them so. They were really taken aback, for they had not expected such a negative reaction. However a colonel who sat atop the study group became worried enough to take me in to see his boss, a general. I told the general of my dismay, suggesting the study be scrapped. It was worthless and misleading. The general was noncommittal. He reassured me, though, that the study would be carefully checked out before being released. This was nonsense. He knew the game that was being played and had no intention of changing anything. Instead, the study, that not only gave a detailed account of the Russian H-bomb but its production schedule as well (which was pretty frightening for it had them producing scads of these weapons in a very few years) was passed around to key Air Force officials.

To what degree it was believed, I'd guess not at all. To what degree it was used, I'd guess a lot, to promote Air Force objectives; not so much to stay ahead of the Soviets but acquire the largest heavy bomber fleet Congress was willing to fund.

At this point in time, Congress thought the sun rose and set with SAC, LeMay was number one hero on the Hill and invariably got what he wanted, even more. The commies were coming, they had shocked the country by exploding their first A-bomb years ahead of predictions, and Congress regarded SAC as our best bet for holding them off. I don't know if the study was leaked to key members of the Congress. If it was I have little doubt that they snapped it up; it was the kind of stuff that made for more jobs in their states, which was and remained good politics. Ignorance may be bliss, but in cases like this it can be used to scare people wanting to be scared in the first place.

With respect to our nuclear intelligence capabilities, I'd say that in most categories, especially the Soviet nuclear warhead stockpile — its size, the mix of warheads and their characteristics — our ignorance has been deplorable. This has been especially true since 1963 when a treaty barring tests in the atmosphere went into effect and Soviet testing went underground. With that, there was no way of capturing and analyzing any debris from their testing. Our estimates became an irresponsible guessing game run by analysts who had

precious little data to analyze. And I've already given you my opinion of the integrity and motivations of analysts who work for the military.

When you pick up a newspaper or magazine which has a seemingly scholarly article, written by a seemingly scholarly guy, that gives a detailed account of the Russian nuclear capabilities, including what sized yields go with what delivery systems (which has been provided surreptitiously by the government to show the media it knows what it's doing when it signs an arms control treaty or plans for new weapon systems), don't believe it. In fact, in most cases don't believe anything. It ain't necessarily so. More likely than not it's been spun from whole cloth.

Now I know I'm being pretty harsh in making such accusations, even though I believe them to be factual. On the other side of the coin, if I'm being factual, I'm being far from fair to these people and not very helpful to anyone. I feel a sense of shame over such behavior, for it reflects poorly on my tolerance and understanding of our democratic process, which I couldn't tolerate being changed in any way.

People are people and in our democratic form of government these kinds of atrocities go on apace. However, I would argue, in national security planning, which in the Nuclear Age has been the most critical government function in our history, this kind of behavior is contemptible; in fact, it borders on being treasonable. For, again I would argue, to purposely lie, fabricate and distort such an all-crucial matter as nuclear war is equivalent to aiding and abetting the enemy. That's what the enemy is supposed to do to us in trying to do us in; we're not supposed to do that to ourselves. I'm not about to apologize for my outrage over this. It's execrable.

Yet, and you've got to believe I've given this a lot of thought recently, which led to my writing this book, who am I to express intolerance and moral condemnation over the way my country wants to run itself. If I disagree openly with what's going on, that's my democratic privilege; a privilege I've used and sometimes abused, and wound up being badly hurt. The trouble is that I've also hurt others, who deserved better. For what?

Can I hold my head high and say that the price of candor and martyrdom has been worth it because in some way, however small, I've helped my country in some tangible way. I could, but I wouldn't be honest with myself, because I know enough about this business to know it's simply not true. The truth of the matter is that I've unfairly condemned a system and the people who comprise it, that most of my fellow Americans, a pretty decent lot, I think, are willing to go along with. They've all been out of step but me.

Not believing in God I've been playing Him, believing in a country I never took the trouble to understand and refusing to accept for what it is. And whatever it is, it's been pretty good to me, allowing me to have an interesting and sometimes fascinating life. As for my inventing the neutron bomb, over my dead body will I admit to any feeling of shame. As for my attitude over the way my countrymen have regarded and treated this weapon, I've had precious little respect and frequently downright contempt for their attitude. Which, I believe, speaks shamefully for me as an American and as a human being. Not that anyone could care less, but I apologize for this.

Getting back to intelligence, but still in the vein of moralizing, if you've got a government that's charged by the people and the Constitution with providing for the common defense, the government is obliged to do something about it. It has to try. I won't say as best it can, for it can't; it really doesn't know what it's trying to do. This goes especially for the U.S. Intelligence community.

Here's our federal government, from the President on down. It's charged with making up an annual budget and taxing the people to get the money. It's charged with making up a defense budget and the Defense Department, like any other bureaucracy, wants all the money it can get its little hands on. It has to give the impression to the Congress and the people that it knows what it's up to, even if it doesn't. It doesn't. For the reasons I've given, even though it doesn't know how to put a coherent budget together, it has to pretend it knows what's going on in the world: what our military capabilities are and who and what our enemies are. If it doesn't go through this dog and pony act, it may (and then again may not, since the whole rotten business is so politicized) suffer accordingly. No government agency wants to be in this position. So the Pentagon, by far and away the most wasteful agency in terms of input-output of money, on an annual basis puts forth a report to Congress explaining the wisdom of its divinations.

Maybe you've seen some of these reports. They're huge; chock full of figures and pictures and somber language, and largely meaningless. Especially meaningless over the years has been the accounting of the Soviet nuclear capabilities, judged to be, by far and away, the greatest threat to our survival. This always has been the case, long before the Pentagon had the gall to claim in its annual report that it had a handle on these capabilities. It was the case right after the war when we tried to figure out what the Soviets were doing on their atomic bomb development.

Even though the Soviet Union was an unbelievably closed society, we were forbidden to fly over their territory to take pictures and listen in on phone calls that might reveal some relevant information, our nuclear experts — in the Intelligence community, in the universities, in industry, and the media — all decided it would be quite a few years, maybe 8 or 10, before the Soviets tested their first atomic bomb. Did they have any hard information for making such a smug prediction? Nope. Were Western spies and Soviet defectors telling us what was going on? Nope. These experts were simply being politically correct in going along with their political and ideological inclinations, which were heavily influenced by the inclinations of the American people who had just gone through a long costly war and didn't care to listen to some alarmist saying we had to start preparing for the next one because the commie A-bomb was coming. This was the attitude of the Truman administration which was searching for every reason to cut the defense budget and get back on the road to peace and prosperity; and so long as we had the Bomb and the commies didn't the road was clear. For all these reasons, practically everyone decided that these backward peasants weren't about to go nuclear war anytime soon.

In fact, so determined was the Truman administration to avoid getting any upsetting news about the Soviet A-bomb program, that it refused to allocate moneys for monitoring aircraft that could drone along over Alaska and other northern latitudes, equipped with special filters that could catch the radioactive debris from a Soviet nuclear burst, which could then be analyzed to determine what kind of burst had taken place. Underlying this refusal was the stubborn

clinging hope that maybe the Soviets would see the light of day and come to some kind of nuclear arms control agreement before the situation began getting out of hand.

Now the Soviet nuclear weapons program wasn't my bag at that time. I kept myself occupied doing other things, mainly having to do with military applications of nuclear radiation. However it was mainly the responsibility of a wartime friend of mine from Los Alamos, Arnold Kramish, a fellow soldier. Arnold, who then was in a small intelligence shop in the AEC, had been trained as a nuclear physicist but he was more disposed to think like a nuclear Sherlock Holmes. Instead of following the standard rules of intelligence analysis, Arnold liked to stray off the beaten path looking for little clues based on the precious little information leaking out of the USSR. Mainly working alone, he began finding bits and pieces of information that he gradually formed into a pattern indicating the first Soviet nuclear blast would be a lot sooner than later. Specifically, he had figured out where their test site was. By getting some ideas of the activities at and around the site, he came to the conclusion they were rapidly approaching the moment of truth.

He began pleading and badgering we do something about it. He got nowhere. Being a good citizen and not interested in hogging credit for this, as it turned out to be, monumental discovery, he informed the CIA and intelligence shops in the Pentagon of his deductions. He was told he was imbecilic, and I don't have to tell you why. Finally, in desperation he went to see one of the AEC commissioners and was able to persuade him to persuade President Truman that a monitoring system be set up as quickly as possible. To his everlasting credit, Truman agreed. On August 29, 1949, almost to the day of Arnold's prediction, the Soviets set off their first atomic bomb. Some hours after that a U.S. monitoring plane scooped up some of the debris high in the atmosphere and shortly after that we announced the event to a shocked world.

Was Arnold appreciated and properly rewarded for his invaluable service to his country? What a stupid question! The CIA, rather than eat the crow it should have stuffed down its throat, accused him of having withheld information so he could get the credit. This was more than Arnold was willing to take and not too long after that he left the government and I induced him to come to RAND.

Given the utter impossibility of running a country to the voters' satisfaction, all U.S. presidents are bound to make monumental mistakes now and then. Sometimes to a degree where they're sacked by their fellow countrymen. Before his death, John F. Kennedy made his share of mistakes, none of which were serious enough to get him into real trouble, as his successor did in Vietnam. Were it not for a bullet that happened to blow his brains out, which may or may not have been where Oswald was aiming, he may have had the sense to extricate us from Southeast Asia and wind up like Eisenhower, a hero. But that's all history.

One major mistake that President Kennedy made, for the best of intentions, which I shared at the time, was to accept the notion that we could survive a full-scale nuclear war and that it could be sold to the American people by pushing a nation-wide program of civil defense. Why he did this is best understood by checking out Dr. Strangelove from your nearest video cassette store and playing it on your VCR. (I'm not exaggerating when I say I've seen this movie on my

VCR, I've got my own cassette at home, at least a dozen times and intend to watch it now and then for the rest of my life.) Dr. Strangelove was based in large measure on RAND's nuclear war studies, especially those of my pal Herman Kahn, which were intellectually elegant and politically insane. When it appeared that nuclear war was inevitable, the Soviets would explode a Doomsday Machine (invented by Herman who estimated it could cost a mere \$10 billion) that would cover the earth with lethal radioactivity. In the movie, the U.S. president was told by his security advisor, heavily influenced by Herman's analyses, that by taking appropriate civil defense measures, after the war the American elite could emerge from their shelters and several years later bring the country back to where it was.

A fantastic movie, with the best black humor imaginable (as Herman was prone to imagine when giving his thermonuclear war briefings), the security advisor neglected to bring chicken soup into the shelters, real chicken soup made by a Jewish mother. So we were extinguished. Had he done so, a far more credible scenario, a better movie, and a better ending could have resulted.

Before coming to Los Alamos, Arnold Kramish had been stationed at a laboratory in Philadelphia, which was doing work on separating out uranium-235 from the more plentiful stuff. This involved dealing with an extremely toxic chemical which if it got on your skin could cause terrible burns and if inhaled could cause radioactive poisoning.

One day, as has happened in laboratories throughout history, there was an accident. The equipment exploded. This hardly is intended to imply that the Manhattan Project research was morally comparable to what the Nazis did to the Poles, Jews, whoever,; but it just so happened that those who had "volunteered" to be in the room while the experiment was going on were Army enlisted men — including a Jew, Arnold. Two gentiles, who history has ignored like countless other gentiles who happened to be in the wrong place at the wrong time in World War II, were sprayed with this chemical and died shortly afterward, in agony. Arnold, as fate had it, was a little further away. Although he was terribly burned, including having his corneas badly scarred (as once happened to yours truly) and poisoned with radioactivity, and given up for dead, somehow he managed to pull through. How come?

While Arnold was hanging between life and death, his parents, living in Denver, were notified. His mother got on the first train to Philadelphia and arrived at her son's bedside a couple of days later, with a potful — by Yahweh, you guessed it — of *chicken soup*! Obviously, Arnold survived, and any Jew brought up by an honest-to-gosh Jewish mother, obviously not like mine, knows why. Had I been in Arnold's place my mother would have arrived with a gallon of freshly squeezed carrot juice and I would have died in a pool of my own excreta.

Getting back to Kennedy's civil defense program, which stressed the idea of family shelters, had a nuclear war taken place and we emerged victorious, whatever that means, the old anti-Semitic claims of my childhood that the Jews were running the country, would have come to fruition. For every Jewish, really Jewish, fallout shelter would have been amply stocked with real chicken soup. When the time came for coming out of the shelters into a still radioactive environment (this stuff lasts for a very long time after a nuclear burst), the Jewish families would be in a far better position to survive in good health and, if they desired, could have run the country. (Many years ago a TV journalist

friend of mine visited Israel where he met and dined with Prime Minister Golda Meir, who had her own recipe for chicken soup and stuffed him with it to the point where it was practically coming out of his ears. He loved it and suggested she patent it and go into the chicken soup business when she retired from politics. She demurred; a pity. Whether Golda took her chicken soup recipe to the grave, I don't know. I hope not.)

As I told Arnold when he related his Philadelphia story to me, "This proves that the power of chicken soup is greater than the power of the Atom". He laughed, but he didn't deny it. How could he? Going back a couple of thousand years, when another nice Jewish boy (from Bethlehem, not Denver) was in dire straits on a cross, had his mother come to him with a potful of chicken soup, would he have pulled through and changed history? We'll never know. I'm sure Arnold has an answer.

"The initial symptoms [like after being exposed to the radiation from a neutron bomb] are similar to those common in radiation injury [like being exposed to intense radiation treatment for cancer, hopefully to save our life], namely nausea, vomiting, diarrhea, (and other distressing effects)." After these initial effects occur, sometime later, depending on how severe the radiation exposure is, "there is a return of symptoms, including fever, diarrhea and a step-like rise in temperature..." Quoted from the official government manual "The Effects of Nuclear Weapons".

Sounds sickeningly familiar? Probably so to most of us who have gone through most or even all of these discomforts sometime in your life; from over-drinking, influenza, food poisoning, emotional distress, experiencing a Washington summer when the air conditioning has gone out, etc. As for myself, as I've complained here, I experienced *all* these symptoms during my childhood at the hands of my ever-loving mother. God rest her soul. As to what extent this loving upbringing of mine affected my interest, make it obsession, in nuclear weapons whose principle effect was radiation, your guess is as good as mine. And you know what my guess is. However, when I was attempting to answer the young lady's question during my college seminar, don't think for a second these thoughts didn't flash through my mind when I told her that dedication and patriotism weren't the only factors that played a role in my inventing the neutron bomb. I hardly was about to bring my mother into the discussion, though. How could I?

Was this obsession over radiation an expression of the most insidious revenge I could think of against a monstrous enemy that had brutally attacked my beloved country and countrymen? Perhaps. Or was it an innate sadism resulting from all the masochism I must have reveled in as a loving child so lovingly cared for by his mother? Perhaps. Maybe those psychiatrists and psychologists who plumb the human mind would have a field day with me, trying to figure out how and why my mind has worked in the field of nuclear weaponry. Maybe they might have some explanations. However, I'm not about to bare my psyche to you here and try analyzing myself. Feel free to do so if you wish. I wish you would because in so doing you might dredge up some suspicions of what drives your own actions and opinions. If you do so and are honest with yourself, a pretty difficult thing for most of us, I suspect you'll discover that rationality is not the most important factor driving your behavior.

When I arrived at RAND, I brought with me a pretty fair understanding of radiation, from a physical standpoint and a biological standpoint. My first job at Los Alamos was to figure out how neutrons bounced around and were absorbed in the various materials that comprised the bomb dropped on Nagasaki. Later on I was assigned the task of determining the danger to bomber crews that might fly through a highly radioactive mushroom cloud from a previous burst, where the radiation hazard could be great indeed.

At RAND, one of my first assignments was in the area of radiological warfare, where the radioactivity produced by a nuclear reactor would be extracted, packaged in bombs, and distributed over the area occupied by enemy soldiers. I was intrigued beyond compare with the potential for such weapons, for the same reasons the neutron bomb intrigued me. The Pentagon's attitude ranged from indifference to hostility. The development of such weapons would compete with atomic bombs that could produce effects they understood and could depend on to get results. And of course, during the RAND H-bomb study I've discussed here, one of my tasks was to determine what role nuclear radiation would play in the bomb's effectiveness.

I sat down with my slide rule, a pencil and a sheet of paper, and made some calculations. The results of my calculations were received practically orgasmically in the ranks of RAND's H-bomb enthusiasts; there were precious few who openly questioned the weapon. This enthusiastic reception included some physicists far more competent than myself, who never bothered to check or question what I had done. Normally, being competitive, they would have gone out of their way to prove me wrong, which they sure did when I made my first neutron bomb calculation.

What I had discovered through my simple calculations, the only kind I've ever made, or knew how to do, was that the radiation from the explosion would significantly transcend the distances at which Soviets in cities would be killed by blast and heat. Apparently I had made a monumental discovery. This certainly wasn't the case for big A-bombs where blast and heat dominated the picture. For a while I was a *cause celebre* among H-bomb lovers; none of whom seemed to have any moral compunctions over killing Russian civilians with radiation. Several years later, when I invented the neutron bomb, many of them expressed the strongest reservations over killing enemy soldiers with radiation. (Which says something about how people regard nuclear war: If you're killing enemy civilians in their homeland, anything goes; if you're killing enemy soldiers, trying to kill your soldiers on the battlefield, well you'd better mind your morals, especially when it comes to radiation.)

The word of my H-bomb radiation calculations spread around and caused quite a stir. My boss, who knew nothing of the subject, got a little concerned. He asked some physicists at RAND, far brighter than myself, to go through my calculations with me. They found nothing wrong. Then he asked a RAND consultant, a fellow by the name of John von Neumann who the self-styled brightest physicists in the world regarded as the brightest guy in the world, to check me out. Johnnie came into my office, sat down and stared intently as I chalked my calculations on the blackboard. He saw nothing wrong with them. I seemed home free. My discovery drew high praise at RAND, although they didn't bother to double my salary this time.

Now the story doesn't end here. Before going on with it, however, I'd like to introduce you to Johnnie von Neumann, an incredible genius whose mind

worked about as rapidly as the super high-speed computers he helped design. Let me give you an idea how this guy's mind worked. While I was at Los Alamos, where von Neumann, another Hungarian Jew who fled Hitler, consulted from time to time, one of the physicists across the hall from me developed a mathematical equation he couldn't solve. It was quite important it be solved quickly. Otherwise computers would have to be used to get numerical answers, a time-consuming process. This posed a serious problem, for there was a considerable demand for computer services.

In desperation, Wayne, the physicist across the hall, appealed for help from his colleagues in our division, extremely bright guys. They pored over the equation and got nowhere. Poor Wayne finally resigned himself to waiting for some computer time to open up. In the meantime, being a whimsical sort, he chalked up the unsolvable equation on a corner of his blackboard, with a note offering (as I vaguely recall) a \$25 reward to anyone who could solve it. This anyone turned out to be Johnnie von Neumann.

Johnnie was a person of infinite curiosity to know what others were doing. When he would come to Los Alamos for some consulting he had a habit of walking around and poking his head into people's offices to see what they were up to. If they were doing something that intrigued him, he would go in and gab with them. Almost invariably he would have a suggestion or two on how they could better do what they were doing. On this particular day, he walked by Wayne's office, peeked inside and saw the equation on the board. He stood there in the doorway in deep thought for a few minutes. Then he walked up to the board, chalked out the solution, and walked out without bothering to pick up the reward.

During his all too short life, von Neumann made many discoveries in mathematics and physics. At the end of it he made the most fascinating of all: he discovered God. Considering Johnnie's God-like brilliance, this had to be pretty convincing proof that God existed. As he lay dying of cancer in a Washington hospital, contemplating what lay beyond, he began conversing with his closest friend, and one of mine as well, an Air Force colonel of all people, about accepting God. The colonel, a devout Roman Catholic with many friends in the priesthood, suggested conversion to Catholicism, saying he would be glad to arrange for a priest to show up and induct him into the faith. This was acceptable to Johnnie, but on one condition: the priest had to be someone who came close to being on an intellectual plane with him. If Johnnie had a unique genius for solving mathematical problems, the colonel had an equally unique genius for bringing people together and getting things done in Washington. In short order, he figured out who the priest should be. He was a scholar at Princeton's famous Institute for Advanced Study, where Johnnie nominally worked before spending full time in the government (he had been an AEC commissioner at the time he came down with cancer). This was acceptable to Johnnie and the two of them got along famously. Johnnie was baptized. One would assume (an assumption probably far more valid than those that go into systems analyses) that Johnnie is now winging around up there helping solve some of the problems in Heaven that God hasn't had time to get around to.

As you might imagine, the news of Johnnie's conversion sent shock waves around the top ranks of the scientific community, not exactly renowned for their religiosity. Some of those I talked to, who thought they knew him well, not only were crushed that their god had embraced *the* God. They were mad,

hopping mad, at him, some unforgivingly. As for my reaction at the time, I so venerated Johnnie that I couldn't take it in my heart to feel anger or disillusionment, as I did at the drop of a hat over my government. I accepted it almost indifferently, as I did when my father picked up God before he died.

As for an explanation of Johnnie's conversion, I wouldn't try to guess. I didn't know him that well and I've never asked the colonel, who undoubtedly knew him better than anyone else, what his explanation was. On the other hand, I would make an observation: Johnnie, to my dismay was entranced with systems analysis, at least at the beginning. (He didn't live long enough to see the damage it was doing to the security of his beloved adopted country.) Maybe that explains it all.

Okay, back to my H-bomb radiation calculations. If no one else, including the great von Neumann, seemed to have any qualms over them, I did. For my intuition, which was fairly good at this point considering how long and caringly I had applied myself to the subject, told me that something had to be wrong. It was too good to be true, and I knew it. I was really bothered and haunted by the realization that what I had done could be way off base and my findings misused by nuclear planners. (Which was a fantasy at the time because SAC wasn't about to bank on an effect that didn't physically destroy a city.)

Time after time I would get up to the blackboard and go through my calculations. Time after time they checked out, until finally one day I found the error. It was a whopper: my calculations were in error by more than a hundred-fold. The poor Soviets would at least be spared the fate of dying from radiation. They merely would be blown to smithereens and charred to a crisp, a far more morally acceptable way of dying since that was what we had done to the Germans and Japanese in World War II.

I was both relieved and a little terrified over discovering the mistake. On one hand, I was at peace with myself for getting my qualms out of my systems. On other hand, I had picked up all this notoriety for my "discovery". I was honor bound to undo it, and worried over the consequences of doing so. I swallowed hard and went off to see my boss. I told him about my mistake, which even a third-grade arithmetic student could understand. He seemed a bit bothered, not by my mistake but because, being an ardent H-bomb advocate, he wanted to see it cast in the best possible light. So instead of chastising me, he asked me to work with some of my colleagues, far more sophisticated and knowledgeable about the physical details of the problem than myself. He was hoping the gap could be closed enough to make radiation still seem a respectable effect, although it was entirely possible it might have widened. As it happened, as I recall, we were able to honestly close the gap by a factor of ten or so; not enough to bring radiation seriously into the act.

I reported this to my boss. He thanked me and returned to his work. He never bothered to report the error outside of RAND and those outside concerned with thermonuclear weapons never bothered to confirm or reject what I had originally done. As I've said, they just weren't that interested.

If you're getting the idea that those importantly connected with nuclear policy and planning operate more on the basis of parochial politics than national security, you're more, much more, right than wrong. If you think that someone, like myself, getting up on his high horse and complaining about the process, however forcefully and eruditely (which I'm not claiming credit for), is of any real value to his country, you're more, much more, wrong than right.

You've got to realize that in the arcane world of nuclear weaponry nobody understands which end is up. Nobody ever will. Even if God had it all figured out, which I highly doubt, and with claps of thunder and bolts of lightning, in His booming stentorian voice (or is it squeaky?) gave them God's truth on the matter and admonished everyone to obey, they wouldn't. They couldn't, they're incapable of rational behavior on this matter.

In fighting for what I believe is right for this country, as one citizen with one vote, I can muster up a lot of technical facts and military common sense to rebut what some prominent official, like a Secretary of Defense (I've met and known a number of them) is proclaiming. Which I used to do publicly while the neutron bomb was hot media property. But I'm butting my head against a stone wall; they run the show, not I. And the show is based on political realities that stem from a nuclear mythology that pervades our thinking. Except in the loneliness of your own mind or in a mental asylum, you can't dispel myths with facts, especially when politicians are not interested in facts. As a sociologist I used to know once told me, after hearing me rant and rave as I've been doing: "Sam, you can solve a problem but you can't solve a fact." That had to be the second wisest utterance I've ever heard.

The wisest came from a rabbi who lived his life in the last century, in a small village in Lithuania, the land of my ancestors who also lived in small villages (my grandfather was a village blacksmith, his father a peasant tilling soil from dawn to dusk). The rabbi, venerated by everyone in the village for his wisdom, grew old and older and one day he lay dying in his bedroom. In the room was his immediate family, including his loving wife. In the adjoining room were his closest relatives. Outside the house were more distant relatives and friends and all the nice Jewish people of the village who so loved and respected him, who formed a long line going down the street.

All of them wanted to be kept up to date on the rabbi's condition. One of them down the line, however, wanted to know whether the rabbi had passed on any last words. So he tapped the person in front of him on the shoulder and asked that the word get off to the rabbi's wife as to what his last words were. The query worked its way down the line and into the bedroom to the wife, who realized there weren't any last words. This was unacceptable.

By now the rabbi had slipped into a coma. However, so insistent was everyone on getting an answer that the poor rabbi had to be shaken violently out of his coma. He came to. His wife looked into his eyes and said "Dearest, what are your last words?" The rabbi pondered a moment and replied "Life is a cup of tea." And slipped back into a coma.

His last words now worked their way out of the bedroom, into the adjoining room, out of the house and down the street to the very last one in line, who happened to be the village idiot. The village idiot pondered the rabbi's utterance for a while. Then he tapped the shoulder of the person in front of him and asked "Why is life a cup of tea?" This was very disconcerting. The person felt obliged to repeat the question to the person in front of him, and so on all the way up to the rabbi's wife. She too found this question disconcerting and decided an explanation was in order.

Again the poor rabbi was shaken into consciousness and asked the village idiot's question. Again the rabbi pondered, this time a lot longer because he knew how all important his answer would be for the villagers. Finally, he

spread his arms, looked up at his wife, and replied “All right, so life is not a cup of tea.” With that he expired.

I’m sure that over the ages every Jewish community has had its village idiot. We had ours, actually a number of them, when I was a child growing up in East Los Angeles. One of them was Jacob, who at that time was a young man in his thirties. He worked as a delivery boy for the local butcher, carrying kosher meat and poultry in a little wagon. He would go up one block and down the other making his deliveries. Whenever we would see him and ask him something, which we always did and which he may or may not have understood, he would reply, “It’s a bluff.” Naturally we nicknamed him Jake the Bluff.

Jake may not have had the command of the language the village idiot had in the rabbi tale, to say nothing of the rabbi. But I would venture that everything Jake ever uttered, and that was all he uttered, was far more profound than anything the rabbi ever said. However, letting the rabbi off the hook, being a man of God and making his living on this basis, he had to watch his step lest he spoke the truth like Jake.

American presidents, at least those I can recall, at times when momentous decisions were in the making frequently sought surcease and counsel from a man of God, some prominent clergyman holding widespread respect, and made sure the American people knew about it. Not that the President necessarily cared what the clergyman had to say. I hope to God not. However, it sure makes for good politics in a country where God still lives. Just between you and me, were Jake still alive today, I’d feel much more secure if he were installed in the White House as private counsel to the President on national security decision making. I’d feel infinitely more secure about our security were he taken seriously. It might give the President pause to reflect on the wisdom of Jake’s words and by the time he had thought it through he might decide that doing nothing, at least for a while, was the best bet. After that, may God help him, and us.

When I first stepped through the nuclear looking glass into RAND and found myself in a strange new world, with strange people having strange new ways of looking at war, I had no idea how little we actually knew about the main enemy, the Soviet Union. However, hating communism and communists as I did, I believed what I was told — that the Soviets were bent on world domination and destroying capitalism, including us. This was axiomatic. To openly express doubt on this theism in my line of work was to risk excommunication.

Much of the Air Force and a fair number of RANDites, including myself, felt that a preemptive nuclear strike on the Soviet Union, as soon as our nuclear stockpile was large enough, was the only way to lay the matter to rest. When the Soviets exploded their first atomic bomb, however, and we began worrying about them getting the hydrogen bomb and the means to deliver it, discretion became the better part of valor.

Some of RAND’s more sober people now began contemplating what we had to do to discourage the Soviets from attacking us — namely, how to deter them. In particular (we’re now in the early 1950s) concern was mounting that the Soviets might be developing intercontinental nuclear ballistic missiles (ICBMs) that could go from Russia to the U.S. in a half hour or so, not giving us enough warning to get our bombers off their bases in time to avoid destruction. (At that

time the U.S. decision to develop the ICBM was being hotly contested by powerful factions in the Air Force, especially SAC whose commander, General LeMay, who couldn't see beyond the nose of a huge jet bomber, told me he never expected to see the ICBM operational during his lifetime. He was wrong by more than 30 years.)

One RAND strategist who worried himself sick about this problem was the incomparable Herman Kahn. (Henry Kissinger, quite a strategic thinker in his own right, once called him the greatest.) Herman was not as brilliant as von Neumann. However, comparing the two was like comparing apples and oranges. For example, Herman was born and died competitive. As bright as he was, he always waxed insecurely over being number one in any of the fields, which covered practically the gamut of human affairs, he worked in. His knowledge in any field was immense, which in his own charming, but arrogant way he would impart to anyone in sight (usually a large audience, he was a born ham who overcame an almost hopeless stuttering problem he had when I first met him in college to become one of the most effective speakers on the circuit). He was overwhelming and when people left his presence they had the feeling they had gotten God's truth, so replete were Herman's arguments. Of course there were a few exceptions; those highly competitive with him and at least one who wasn't — myself.

Johnnie, on the other hand, for the obvious reasons, found no reason to be competitive. He knew how brilliant he was and that others shared his self-opinion. Unlike Herman who felt compelled to plumb and understand the universe, Johnnie, who was a worldly wise man, chose to channel his intellectual pursuits into relatively few technical and mathematical areas. And when it came to understanding and collaborating with people, especially his fellow scientists, he was magnificent, which allowed him to have great influence in affecting certain nuclear policy decisions.

In college, Herman was determined to show his professors how much brighter he was in *their* field of expertise, which he was, and which he did to their great annoyance. In the Army, during World War II, he was equally determined to show his brilliance, from the very start at the induction center where the two of us (we were inducted at the same place on the same day) took the Army's equivalent of an IQ test. Wanting to prove himself, Herman had boned up on every IQ test he could get his hands on. Brimming with confidence he sat next to me, certain he would score 100%, which had never happened before.

"Men", the lieutenant told us, "nobody ever has finished this test, so don't feel under any pressure to do so. If you give the wrong answers to any of the questions it will count doubly against you, so don't try and guess. You've got 45 minutes to do the best you can. Good luck. Start!" After 20 minutes or so Herman had finished. He rested for a few minutes, checked his answers, and with a few minutes left got up, turned in his paper, and left. A couple of minutes go by and Herman comes rushing back into the room demanding his paper back. "Why do you want it back?", asked the sergeant. "Because I made an arithmetic mistake on question seventy-four (or whatever number it was) and want to correct it", said Herman. "Get the hell out of here!", yelled the sergeant. Herman left.

Sure enough he made only one mistake, but that was enough to make him number one in the Army. He was pulled out of the regular induction routine and

examined by sociologists, psychologists, educators, you name it, to find out what his background was, whether such genius ran in his family. They found nothing, except that Herman, of Eastern European Jewish stock, came from a broken family of very ordinary parents who did very ordinary things, as had their parents and grandparents. My explanation for Herman was that some nuclear particle out of the cosmos had altered the genes of one of his parents and he came into the world a cosmic mutation, with cosmic intellectual ambitions.

I hadn't seen Herman for a few years before he died, but for the more than 40 years before that he had been an unabashed atheist, going out of his way to ridicule God and those who believed in Him. He was despised by most American Jews, especially rabbis, for his views on thermonuclear war (that we could fight and win one, and go on living happily ever after), who were mostly on the liberal side and inclined to seek an accommodation with the Soviets lest the world be blown up. When he died, he was buried with full religious services presided over by a rabbi. Who knows but that I'll follow suit some day; I certainly won't follow in the footsteps of John von Neumann, I wouldn't have the patience or tolerance to take instructions from an intellectual superior who's teachings I wouldn't listen to and would resent being told to try.

Although compelled to know practically everything in the world worth knowing, and to solve all its problems worth solving; in the area of nuclear war, in which he made his mark, Herman had a bad habit. He paid little attention to the most crucial part of the problem — the facts, what few there were, and there were precious few in areas that really counted. At RAND, this put him in good company, for most of the senior analysts, who unfortunately were the most influential back in Washington, had the same bad habit. I suspect that deep down many of them realized this deficiency, but their ambitions and their megalomania prevented them from admitting it. Only someone like myself, who had his ego but not the mania to go with it, would now and then complain about this hanky panky, but to little avail. They always would be glad to listen to me when I would come to their office to register my qualms over what they were doing. When I left, however, it was as though I had never come in. This went for Herman, one of my best friends, who you might think would listen seriously to a real friend with the best of intentions for him. He never did.

Herman had completed a massive and eloquent analysis of the consequences for U.S. security, indeed survival, were the Soviets to achieve a relatively modest ICBM capability and one day attack our SAC bomber bases out of the blue. The consequences were horrendous enough to ruin your day. A pall of gloom was cast over RAND, as Herman, a master showman, half Billy Graham and half Milton Berle in putting on his act, demonstrated, in an elaborate and compelling briefing, that by the mid-fifties the Soviets would be able to stage this surprise attack and do us in, and probably would. The audience went into a funk, with no one challenging Herman's results. That is, except for me who, knowing Herman as well as I did, knew there were a lot of glaring discrepancies behind his answers. But I kept my mouth shut, as I'm prone to do when there are a lot of people around.

So ominous was Herman's story, that it got out of RAND and around Washington and scared the living daylight out of people. Something had to be done about it, quickly. We had to make decisions about putting bombers on airborne alert (which we did), and building hardened (against nuclear blast)

shelters for the rest (which we didn't). Of course doing all these things fattened SAC's kitty which was just fine with them, even though its boss didn't think ICBMs were feasible. It was also just fine with me because these measures weren't all that expensive compared with the money SAC already was getting, plus the fact that I did believe there was a serious potential threat a la Herman and thought the sooner we addressed ourselves to it the better.

If I was pleased with what Herman had done, on the other hand I was really bothered that he hadn't done an intellectually honest study. Knowing him as well as I did, I suspected that he had put out his study more for effect and notoriety (which he sure got) than for substance. Being his close friend, I worried that sooner or later someone would challenge him on the study and he might get himself in a real jam if he couldn't defend himself, which I knew he couldn't. So one day I dropped into his office, sat down and began asking him questions — all having to do with intelligence. (As you have sensed by now, by then I had developed a considerable jaundice on the intelligence community.) My questions and Herman's answers went something like this:

First question: "Herman, you have given the Soviets a couple of hundred operational ICBMs by 1954. I'm not aware of any hard evidence to back up this number, but maybe I've missed something. Do you know something I don't know? If you do, would you please explain to me how you used this information to come up with this number of missiles?" Well, he *thought*, but didn't *know*, this was a reasonable estimate, but admitted he couldn't back it up with hard data. (As it turned out there was no way the Soviets could have this number of missiles at that time.)

Second question: "Okay Herman, so you can't back up your numbers, but you must have gotten your intelligence input some place. Surely, you wouldn't just make this up. Now I've had access to official intelligence estimates of Soviet nuclear capabilities and I assume you have too. I don't ever recall seeing your numbers come out in official form. Or maybe again I've missed something. Just what estimates did you use to come up with this number, which I assume you've used for your study?" Well, he hadn't quite based his study on government estimates but rather on his own personal assessment. He did take the government data into account, but didn't bank on them for his calculations.

Third question: "Herman, we've always had reliability problems with new weapon systems and it takes a while to work out the kinks. Would you please tell me how you came by your reliability estimates for Soviet ICBMs when we haven't even observed any test flights so far, to get a handle on how well they're doing?" Well, we had been doing pretty well with some of our short range missile testing (which had no meaningful relationship to testing ICBMs at a hundred times the range, which we had yet to do at this juncture; in fact we hadn't even seriously begun our ICBM program at this juncture) and there's no reason why the Soviets, who were very serious about short range nuclear rockets for battlefield use, can't do well at longer ranges. (He also might have said, more honestly, there were good reasons why they could do worse. He knew this, he knew practically everything, but there was no point in rubbing it in any more than I was.)

Fourth question: "Herman, you've assigned a delivery accuracy to Soviet ICBMs that's pretty good, but you know there's a lot of argument over how well we can do. How did you arrive at this accuracy for the Soviets?" Well, it seemed technically possible (he was right) and since the issue is so critical

(right again) it seemed responsible to assume this accuracy. (In the way of reminiscing, I remember having dinner with Pat Hyland, then president of Hughes aircraft, an old hand at developing missiles who was on the advisory board to the U.S. ICBM program, who was willing to bet that the first U.S. ICBM wouldn't be able to come within 20 miles of the target. Shortly afterward, when the U.S. tested its first operational ICBM, Pat turned out to be way off base, by some 20-fold. Our missiles were landing about a mile from ground zero. So Herman deserves some credit here, even though his estimate was spun from whole cloth.)

Fifth question: "Herman, you're giving the Soviets the capability to develop thermonuclear warheads for their ICBMs that will have a pretty big bang. (I forget what it was.) Considering that to the best of our knowledge (and here our knowledge was pretty good, for by now, scared to death of what the Soviets might be up to, we had developed nuclear test monitoring equipment that gave a reasonably good idea of what kind of bombs the Soviets were testing, especially the big ones, and how big the big bangs were) the Soviets have yet to explode a thermonuclear warhead that can be adapted to an ICBM, how did you come to this conclusion?" More of the same. (About ten years later the Soviets broke a three year nuclear test moratorium by setting off the biggest series of thermonuclear explosions in history and more than caught up with us in this area. Then, a couple of years later, we signed a treaty with them banning tests in the atmosphere. Ever since, our knowledge of their warhead capabilities has been woefully insufficient. This hasn't stopped us from making official estimates anyway. Knowledge or no knowledge, the intelligence community is obliged to furnish estimates to military planners, even if they're worthless and very possibly misleading. If you are one of those strange ducks trying to understand what this nuclear business is all about and read the "respectable" journals the CIA leaks information to, please don't get the idea this makes you a more respectable arm chair analyst than anyone else.

I'm sure I had a few more questions for Herman, but I can't recall what they might have been. But I do recall that this get-together was a turning point in our friendship. Although it never quite ended, from that moment on it went down hill. Our discussions, which earlier on had gone on for hours, became brief and infrequent. Which still didn't stop me from lacing into him when I thought he had overly misbehaved, which didn't slow him down one bit.

Now maybe you're thinking, as a self-proclaimed patriot, I should have put up a holler, in and out of RAND, to set the record straight on Herman's misdoings. Don't think I hadn't thought about that. However, after having gone through a similar experience over the RAND H-bomb study I knew better than to pull a stunt like that. I wasn't the only one on to Herman. There were plenty, in and out of RAND, who knew what he had done was basically fraudulent. The trouble was that he already had made his mark and a huge impact on Washington officialdom, which in those days liked hearing horror stories like this. Although Herman couldn't prove he was right, I sure couldn't prove him wrong. Neither of us knew what the facts were and where the truth lay. It was a matter of judgment and mine really didn't differ all that much from his, except I wouldn't have put on such an elaborate snake oil act to express mine. If I had done things in my own simple minded way, nobody would have taken me seriously. The only times I've been taken seriously were when I had something to say that someone wanted to hear, in which case they couldn't care less

whether I had done an elaborate analysis, full of shaky or unfounded assumptions, or made some calculations on the back of an envelope.

When Herman died, even though our friendship had all but disappeared, I was terribly bothered. Not only because of the grief of his family and many fine friends, who also were friends of mine, and the loss to the country: Like most prophets Herman was of dubious honor, and sometimes of no honor at all (which goes for most of us, certainly myself); but with his ceaseless quest for understanding and trying to explain what couldn't be understood, he forced people, a lot of very important people, to think about important issues. If nothing else, by doing this, frequently outrageously, he forced those responsible for making important decisions to ponder what they were doing, even though what they did was not of Herman's persuasion. (To repeat what the colonel who had worked for the Joint Chiefs of Staff once told me, these decisions were made "Because it seemed like a good idea at the time.") I was bothered mainly because I had badly and unnecessarily hurt a friend. I had done what I thought was right. I was wrong. I had gained nothing: He didn't change in the slightest; unfortunately neither did I. We both continued on our ways, behaving and misbehaving, as I did with Herman on that occasion and much later on much worse with a very close friend who had helped me immeasurably in my career, but was big enough and tolerant enough to suffer through me and keep the friendship going.

I don't think I've ever felt really guilty about these antics of mine. For at the time I did so for what I thought were the best of intentions, for my country. On the other hand, when I look back I feel a deep sense of shame. I suspect it will stay with me to the end. It's not that I don't feel terribly guilty now and then over something I've done. However, if I want to I can rationalize it away. But guilt, as I choose to view it, arises from what you do; shame has to do with who you are. I've done some shameful things that are mainly none of your business. Besides I'm too ashamed to tell you. The shame is still there. During my professional life what I did to Herman that day has to be close to the top of the list. I doubt that Herman ever slowed down long enough, in that unbelievable frenetic life of his, to think about such things. I have, especially in the last few years or so. If I'm not going to get shame out of my psyche, the least I can do is to apologize for it. You may feel I'm nutty as a fruitcake in saying this, but please keep this in mind: You're not me.

Okay, lets get back to my nuclear life and times. In 1950, backed by the Soviets and the Chinese communists (we called them Chicoms in those days), North Korea staged a surprise attack on the South. Whatever the hopes were of many Americans who thought the commies had stopped coming and we might get some disarmament going were now dashed, but good. In the nuclear area, the Oppenheimer gang, so keen on arms control deals with the USSR, now decided that to counter Soviet aggression without risking all-out nuclear war, it would be necessary to develop low-yield tactical nuclear weapons to stop the Red Army. Seemed like a damned good idea to me, and I decided to get acquainted with the subject. As it turned out, I was to get more than acquainted with the matter. I wound up spending most of the rest of my career on it.

In the Pentagon, however, where the Air Force still held sway, there was fierce resistance to these weapons. With still a limited amount of fissile material, building up a stockpile of tactical weapons meant, in effect, scaling

down the strategic stockpile. As the Air Force saw it, were the commies to do something really nasty where our so-called vital interests were at stake, rather than waste nuclear weapons against enemy ground forces, who came on the cheap and could sop up inordinately large numbers of scarce and highly expensive nuclear weapons, we should go directly after the urban-industrial assets of the trouble makers, like the Soviets or the Chicoms. We would blast them back into the Stone Age. Doing this, as the argument went, would quickly make the ground war irrelevant and save the lives of a lot of American soldiers in the process. As the Air Force saw it, wanting to invest our precious nuclear assets on a bunch of worthless enemy soldiers was practically tantamount to treason. So angry was the Air Force over Oppenheimer because of his push for tactical weapons, and they had never forgiven him for his resistance to the H-bomb, that along with powerful support in certain government quarters they set out to get him. They did, by taking away his security clearance, to their everlasting shame, if they were capable of any. They destroyed a great American.

I hate to say this, but I thoroughly agreed with the government's decision at that time. Now, as I look back, I look back with shame, over my intolerance and immorality. It's not what I did to Oppenheimer, I did nothing to help get rid of him. Rather, it has to do with how I felt about myself at the time and who I was. Within myself I acted shamefully and I still feel shame when I think of it. I can't get it out of my system. I haven't said this openly before and my former nuclear colleagues might be appalled to know this. Then again, maybe not. They're a lot older and if they still care about these issues perhaps they're a lot wiser in realizing what Oppenheimer's country did to him was shameful.

I don't know what Oppenheimer's views on nuclear policy might be today, were he still around. However, I'd venture a guess. He'd still be dead set against the government's position, for different reasons (the world has changed, enormously) but again for very good ones. Were he to fight for his views as intensely as he once did, once again he would get the ax. I'm sure he'd understand why. He wouldn't be in danger of losing his security clearance for consorting with commies and being against national policy, as happened under President Eisenhower. Look at Reagan, who after declaring the Soviets an "evil empire" a few years later would declare some of his best friends were commies and consorted with them as friends at least as much as Oppenheimer did. After giving highly moral reasons for Star Wars, much the same as Oppenheimer gave for battlefield nuclear weapons, Reagan bumped into the most fierce opposition imaginable from key government consultants and his own Joint Chiefs of Staff. He did nothing more than back away from confrontation, let alone firing them and removing their security clearances. He wouldn't have dared. How times do change.

Around the time Oppenheimer began pushing for using low-yield nuclear weapons on the battlefield, I gave a briefing one day in the Pentagon. (As a matter of fact, it was the same bomb briefing I'd given to LeMay.) When I was through, a handsome young Air Force colonel, who was about six foot five and looked eighteen going on seventeen, came up to me and said "I'll see you in my office this afternoon at 2:30 in room 4E342 (or whatever the number was)", and walked away without even giving me his name. I stood there dumfounded. Who was this guy, whom I'd never met before, telling me what to do. Don't ask me why, there were plenty of other things I could have been doing that afternoon,

but at 2:30 I walked into his office. He never bothered to get up, or introduce himself, or even shake my hand. Instead he motioned me to sit down and proceeded to tell me “Now here’s what I want you to do for me.” Again, don’t ask me why, but I agreed. For the next 15 years I spent the bulk of my time in close association with Bennie Schriever, who rose from a German born kid stranded in the U.S. during World War I to a four star general and a legend in his time for developing the U.S. ICBM and paving our way into space.

Were I to give any one person singular credit for helping shape my thinking on nuclear weapons and policy, it would have to be Bennie (born Bernhard, which he cared for about as much as I cared for Samuel). Bennie, incidentally, was not of Jewish ethnicity, as I’ve been prone to mention in discussing people so far. However, had it not been for a handful of Jews, Johnnie von Neumann being uppermost, he never could have accomplished what he did. I might add to this that more so than anyone else, Bennie, who was no saint and tough as nails when it came to fighting and winning wars, was the guy who first pounded some morality into my thinking about nuclear weapons. Although he had despised and help fight against Oppenheimer over the H-bomb issue, in essence they were in bed together on the morality of war in the Nuclear Age: It should be kept strictly to military operations wherever possible and away from noncombatants and their means of existence; and technology should be exploited to the maximum to achieve this moral objective.

Despite some differences (where I was usually wrong and he was usually right) we took to each other like ducks to water. Before I knew it (having this freedom at RAND to do what I wanted) I was spending most of my time in the Pentagon working with Schriever, learning a lot and providing him with estimates of what the future held for nuclear warheads: how they might be used for various Air Force missions — strategic, tactical and air defense. As any fool could plainly see, and Bennie was nobody’s fool, if the country was going to get its money’s worth out of the Air Force in those days, it would have to leave its glorious past — with heroes (mothers crying over the dead ones and generals pinning medals on the live ones), thousands of airplanes trying to shoot each other down (while the poor slobs on the ground were shooting each other up at a vastly higher rates and getting far less glamour), and all of which made war so exciting, and fantastically expensive. The Air Force, if it was going to help win a war without bankrupting the country, would have to go nuclear — all the way. It also would have to embrace the new technologies that came out of World War II and accelerate the development of high-tech weapons.

Bennie, who headed up a planning shop shaped around providing advice on what technologies to push and what advanced weapons might result, and held respectable credentials both in air combat and aircraft development, had a tremendous intuitive feeling for this. We would spend hours and hours together with Bennie discussing and explaining these issues with me. Before meeting Bennie, I had loved nuclear weapons for the sake of loving them. After meeting and getting to know him, I began to realize what they were all about.

As you might imagine, Bennie’s views on nuclear weapons, which would spread the weapons all around the Air Force, especially the tactical force, did not rest well with the big bomber boys. Worse yet, in the strategic area he was probably the Air Forces strongest proponent (as a mere colonel, the generals were too cautious to take a strong stand, which is why many of them became

generals) of the ICBM. Clearly, as any fool could plainly see, this would revolutionize warfare as never before. Needless to say, this did not endear him to the boys at SAC and their pals in the Pentagon. LeMay got so aggravated with Bennie's missile pushing that he tried to get him out of the Pentagon and off to someplace like Alaska or Korea where he would be out of his hair. Fortunately though, the Chief of Staff in those days, who had known Bennie from pre-WW II days and had great respect for him, didn't let this happen. So Bennie was allowed to go onward and upward. Several years later, as the country's number one missile man, he became the handsomest guy ever to grace the cover of TIME magazine, which must have given LeMay apoplexy; he never did cotton to those new fangled missiles that didn't carry pilots and bombardiers and the rest of a bomber crew.

To facilitate my helping him out on various nuclear matters, Bennie persuaded the Air Force to give me a very special clearance enabling me to find out what our current and projected stockpiles of fissile materials (uranium and plutonium) were. Presumably, at least in theory (but hardly in fact), with this information in hand I could provide assistance on what kinds of nuclear warheads would best fit into future nuclear weapon delivery systems. In those days, when we didn't have an awful lot of these materials, certainly not as much as the Air Force wanted (which was infinite so they could be able to drop an infinite number of bombs on the commies), their amounts in the stockpile were held extremely close to the vest. The number of people cleared for this information was very sharply limited; at RAND, for example, there were only three people holding this clearance and this did not include the president or the vice president.

To make sure the commies didn't get their grimy little hands on these stockpile amounts, which theoretically (but hardly factually) would allow them to get a handle on our present and future nuclear capabilities, which in the minds of some could have made the difference between war and peace, the number of documents (all stamped Top Secret, Limited Distribution, Eyes Only and all that arcanery) containing these numbers were as scarce as hens teeth. I never was allowed to see one, nor was I to tell anyone with no need to know I even possessed such a clearance.

Instead, in order to do my work, I would go to the office of an Air Force colonel in the Pentagon who had control over these documents. He would read off a list of numbers corresponding to how many kilograms of uranium and plutonium were or going to be in the stockpile. I would then scribble them on a piece of scratch paper with no identifying notes or classification stamps. Then, since I also was privy, in my dealings with Los Alamos, to the amounts of these materials required in future warhead designs, I could piece together a story of what kinds and how many weapons might be available to do what kinds of military tasks and produce what levels of target damage and what we call in the nuclear parlance "collateral damage" — that is, unwanted damage, to non-combatants or to our own military forces. Since the Los Alamos data on nuclear warhead designs, especially future ones, also was highly sensitive, during my visits there I also had to take similar notes, giving no clue to anyone but myself what my scribbles meant. (In those days my memory was pretty good; today I would have forgotten what things were what right after I left the office.)

All this, in my opinion then, not at all now, made for a productive relationship with Schriever's office and Los Alamos; I could help Schriever figure out preferred advanced weapon systems and help a few of my Los Alamos pals figure out what sorts of advanced warhead concepts they might concentrate on. In my mind, and in Schriever's and the Los Alamos people, I was performing a unique and valuable function. Naturally, all this made for a highly complicated existence, as I fretted over inadvertently breaking security and wrestled with the problem of keeping confidences. However, I was able to steer my way through these shoals to my satisfaction and that of those concerned.

Needless to say, my memory being what it is today, I wouldn't trust myself to go through that act again and I couldn't if I wanted. After all the lambasting I've given the government, telling them how stupid their policies were and why, in considerable technical and military detail, there's no way I could get my security clearances back from a government which I'm sure holds me suspect of dubious loyalty to decent patriotic American values on matters of war and peace.

One day, one of my RAND colleagues, Steve, who had just completed a nuclear study, but was not cleared as I was to know the size of the fissile stockpiles, briefed his study to the staff, including me. At one point he put up on the blackboard the precise amounts of these fissile materials, which he claimed to have gotten from unclassified sources. I knew him pretty well. He was one of those vainglorious types who put their own intellectual vanity above everything else, including, when they thought they could get away with it, national security.

The probable truth of the matter was that he had visited with the Pentagon colonel in charge of the fissile material documents to discuss his work. To be helpful, the colonel had pulled out a document to give Steve some broad indications of the stockpile numbers without violating the letter of the law. What happened then was that the colonel was called out of his office by his boss or had to go to the men's room, and left the document on his desk, figuring he would be back in a couple of minutes and trusting Steve, who was trusted enough to have a Top Secret security clearance, not to peek while he was gone. (I surmise this because similar things had happened with me innumerable times. If somebody is sufficiently trustworthy to merit a high level clearance, he's trustworthy enough not to read other people's mail.) Undoubtedly Steve had peeked, quickly jotted down the numbers, stuffed them in his pocket, and brought them back to RAND where he put them up on the blackboard.

In putting the numbers on the blackboard, Steve, of course, had no idea I had official access to them. Had he known, I doubt he would have been stupid enough to do so. On the other hand, he was stupid enough not to realize that if these numbers got out of RAND and came to the attention of someone like the aforementioned Air Force colonel, this could have caused his dismissal and put RAND in a bind for passing off as unclassified some of the most highly classified stuff around.

After the briefing I went back to my office and pondered the matter. I really was in a stew. Should I go see this bastard and tell him these numbers never should get out of RAND, for the aforementioned reasons? Should I do the right thing and turn him in to the Air Force colonel, with the awful above-mentioned

consequences? Or should I do nothing and pray nothing happened? You have to believe me, I really anguished over what to do.

Finally, I hit on a solution. I would go see RAND's president, not cleared for these numbers, and tell him the whole story. So I went to his office and without being specific told him what had happened and what the consequences might be if this got out of RAND. In my mind I was able to rationalize I had satisfactorily come to terms with the security problem. The truth of the matter is I had grossly violated an official trust placed in me when I got my stockpile clearance. The rules being the rules, I deserved to be fired. In the president's mind, the solution was simple enough. He made sure the numbers never got out. What he may have said to Steve, we'll never know; they're both dead, as are most of the senior professional people at RAND in those days.

As for my conscience on this episode, I felt shameful at the time and still do. You probably think I'm out of my mind. But it's my rocker, not yours, and when I balance the moral scales on what I did, I feel weighed down with shame. I should have done the right thing and gone straight to the Pentagon colonel and told him what had happened. Being officially charged and honor bound to protect his country's secrets, he could have decided what to do. My guess is that RAND, which in dealing with nuclear war matters would calculate worst and best case scenarios, would have been in for a worst case scenario it never thought possible, much worse than what happened when Daniel Elsberg (then at RAND) gave out the Top Secret "Pentagon Papers" on the villains behind the U.S. debacle in Vietnam.

As for scenarios that might have occurred were the numbers Steve put on the blackboard to have gotten out into the public domain, one can only speculate wildly. Being a scholarly bunch of guys who were brought up to take notes when attending lectures, some of the people in the audience may have done just that, copying down the allegedly unclassified stockpile numbers and then passing them around to college professor friends working on national security problems, who could have put them out in books or journals, citing RAND as a source.

Were the Soviets to have seen these numbers, which were very precise, not just rough estimates, conceivably they could have concluded they were the real thing. They could have used them in some critical planning decision, like whether or not to invade Western Europe. Back in those days, with their huge conventional army, dwarfing that of NATO which was barely getting underway, they could have defeated NATO and occupied Europe with consummate ease. Having gained and now holding hostage such a valuable prize, they might have been more than willing to absorb nuclear punishment from the U.S. if, having some idea of how many bombs we had, they decided that the final outcome would be in their favor. At least that's the way some experts were thinking at that time. But enough of what might have happened. It never did; and maybe what I did wasn't all that bad, at least in your eyes. In mine, I behaved shamefully.

Having given you a few tales dealing with nuclear secrecy and security, during and after the war, I feel compelled, while I'm in the mood, to add a few more that might interest you and relate my personal philosophy about this business to some personal experiences.

In the early days, when nuclear weapon secrecy was held practically as tightly as war plans, the number of facilities holding technical information on warheads in the design stage could be listed on the fingers of one hand. This was partly because concern that a security slip could get such information into the hands of the commies. It also was due to time-honored bureaucratic power struggling, where government agencies have a propensity to keep data of common interest from each other. Unlike Oppenheimer who while a shooting war was going on wanted as many people in on the act as possible so that exchanges of ideas could take place, which always makes for a more creative and productive environment, the top management at Los Alamos, headed by Norris Bradbury, a naval officer at the lab during the war and way down the list in scientific ranking, wanted to keep the military out of the act, even though the lab's funding came from the Pentagon. By Bradbury's decree they were to know as little as possible about future warhead concepts.

Since the Air Force at this juncture held a virtual monopoly on the nuclear stockpile, there was a bitterness between the lab and the Air Force over how much information the Air Force was entitled to: Los Alamos telling the Air Force to keep its shirt on and wait to see what kinds of new warheads might be available to them; the Air Force telling Los Alamos that as the prime user of these weapons they were entitled to be in on everything that might facilitate their planning. In principle, the Air Force was dead right on this issue. For had Los Alamos been more forthcoming a more rational planning process could have existed. (In fact, looking at the record of our nuclear planning, which to put it mildly has been little short of irrational, it wouldn't have made much difference one way or another.) But boys will be boys, and has always been the case, even in an area so terribly important as nuclear war, this uncalled-for barrier between the designer and the user continued.

Regarding this unhappy state of affairs, I found myself in a unique position regarding this problem. On one hand, because I was officially outside Air Force control, even though they paid RAND's bill, having worked in the design section at Los Alamos during the war and knowing a fair number of scientists who had stayed on to work on advanced concepts, I was able to work out a splendid rapport with them, plus some of the newcomers. Allegedly being a military expert, I would be given access to these concepts and in return give them a detailed military explanation of my views on their importance, or lack of. This they appreciated no end, for my enthusiasm for some of their ideas would give them additional incentive to continue their work. Fine, but it was understood that this was just between us. None of the information they gave me was to be passed to RAND or the Air Force. Were I to break this understanding, there would be a lot of trouble, for them and me. I agreed to go along: not too happily, but then not too unhappily. In my own mind I thought, egotistically because of my self-assumed military expertise, this was for the good of our weapons program and thus for the country.

On the Air Force side, my principle point of contact for gaining knowledge of Air Force thinking on using the Bomb was a facility on an air base at Albuquerque. As with Los Alamos, I had a very profitable relationship with the officers there. They would provide me with very useful and sometimes very highly classified information on Air Force plans and operations for nuclear weapons. However, at no time did I tell the officers of the clandestine

relationship I had with Los Alamos. Nor for that matter did I tell anyone at RAND.

Throughout my career, when it came to protecting classified material I can boast of a pretty good record. I may have left my safe open once or twice over the 40-plus years I had access to such material, but apart from that my record bordered on the impeccable. I don't recall ever being taken to task for a serious security violation. This isn't to say that I didn't skirt around the edges on occasion, but on balance I pretty well observed the rules. When I broke them it was not of my volition, but rather because I was asked to by personal friends, holding highly responsible positions, in the best interests of the country.

Throughout my career, when it came to protecting personal confidences I did so unhesitatingly — almost. As I've said, in choosing between God and country, I've never had a problem. My country came first. As to whatever dedications might have lay in between, I don't know but it's a long list. However, during this complicated relationship with Los Alamos and the Air Force, there came a time where I found myself in a position where I had to choose between personal loyalty to those who had confided and placed their trust in me at Los Alamos (people of decency, dedication and integrity) and my patriotic duty, as I saw it, to my country. How God might have weighed the moral aspects of betraying my trusting friends against my allegiance to my country, short of going to a confessional cubicle, with a priest holding top security clearances on the other side, I haven't a clue. But there's no point in keeping you in suspense, since you know well what I did. I came down on my country's side, with absolutely no qualms. Did I act despicably? Or nobly? Let's talk the matter up a bit and perhaps you can draw your own conclusions, if you haven't already done so.

In the real world way of looking at it, whether I came down on the right or wrong side in my decision, we'll never know. After all, at that time our experience with nuclear war was zilch. (Dropping two atomic bombs on defenseless Japanese cities is not my definition of fighting a nuclear war.) Our plans for using nuclear weapons not only were devoid of experience, they were largely devoid of sanity. So one could make the argument that while the moral consequences of my personal betrayal were considerable indeed, the military consequences were really unfathomable. There was no way that my action could have had any momentous effect on our nuclear policy, and indeed that was the case. Besides, what I divulged would have come out sooner or later, probably sooner. To say that what I did might have made the difference between war and peace is preposterous to the extreme. The same comment could be made today with equal veracity. However, what mattered to me at that time is that I genuinely believed what I did was of crucial importance to our security.

Before going on any further with this security saga, I would like to place this episode in a more earthly context, far more realistic than the fantasy land of nuclear weaponry. So please allow me to spin a morality tale here which I believe pretty well sums up what I've been torturing myself (and probably you) over.

One day, little Abie came home from school and that night around the dinner table asked his father a question: "Papa, what is morality?" "Why would you ask me a question like that?", replies papa. "Because", says Abie, "my

teacher talked about it in class today and I couldn't figure out what she was trying to tell us." "Okay, Abie", says papa, "let me give you a practical example of what morality is all about."

"Suppose a customer comes into my store one day, makes a ten dollar purchase, gives me a twenty dollar bill, and then before I have a chance to bring him back his change he's walked out of the store. So what do I do? That's the moral problem. The moral problem is: Do I or don't I ... tell my partner."

Most of us will agree that morality often can be a relative thing. For a lot of American business men (and defense contractors) I suspect it's not even an issue at all when it comes to dealing with their customers, let alone their partners. Back in the early days when nuclear weapons were supposed to be the bulwark of our national defense the moral aspects of dealing with others, who felt the same way but operated in different ways, could be pretty complicated, as I've been trying to explain. So with all this in mind, plus Abie's papa's dilemma (or was it?), let me get around to the specifics of this nuclear morality play.

On one of my visits to Los Alamos, I dropped in to visit two of my pals charged with devising new advanced warhead designs, which always has been my cup of tea. (In fact, before passing on, perhaps I'll repeat the rabbi's last words, and if I'm challenged by some idiot I'll have so much to say toward explaining what I meant that I'll probably live another few years explaining why. And only the idiot would understand.) For, having these designs in hand, I could apply myself to figuring out what the military implications might be for such devices, which is exactly how I came to invent the neutron bomb concept.

My pals were quite excited. They had just come up with a new warhead configuration that could bring the investment of fissile material down by a very substantial factor, more than 50% as I recall. There were two ways of looking at the implications of this new design: You could build far more strategic weapons, or you start seriously democratizing the stockpile by building a significant number of tactical nuclear weapons. More and more, thanks to guys like Bennie and Oppenheimer, this was beginning to appeal to me. I was at least as excited as my pals and explained why. This had them even more excited over their discovery. However, for the time being, I had to keep it to myself, despite its seemingly profound implications. Which made me very unhappy, as well as my pals. They were dying to get into the limelight because of their discovery; but the rules were the rules.

I really faced a moral dilemma over what to do with this information. Should I do nothing? Which most people would have regarded as the honorable thing to do. Or should I confide in someone I knew I could trust? Someone who could put the information to good use without revealing where he got it. So I went off to Bennie and explained the idea to him, suggesting we surreptitiously feed this information into his nuclear planning, in which, of course, I would be participating. He thought that was great, but suggested I see one more guy. This was a mutual friend of ours, who was Chief Scientist of the Air Force, a position of considerable importance. So I went off to see the Chief Scientist. I explained what was going on at Los Alamos and admonished him to keep it to himself, but nevertheless having it in the back of his mind when advising his superiors. Needless to say, I felt a bit queasy about what I had done. It could have gotten my Los Alamos friends in difficulties, to say nothing about myself.

On the other hand, I could have helped out the country in some significant way, so I believed. So what happened? All the above.

No sooner did I leave the Chief Scientist's office when he picked up the phone and called an official at the AEC in charge of the Los Alamos lab. He expressed his outrage over the Air Force not being told of this new development. Before you knew it, a first class brouhaha was going on between all parties concerned. The outcome was not entirely satisfactory, but nevertheless a crucial new design had been revealed far earlier than otherwise would have happened. As a consequence, new requirements were established much earlier and much more efficient warheads came into the stockpile much earlier. I relate all this not so much to take some credit for this development. Rather, it's to describe the childish and harmful games people played over our nuclear developments during those days.

As for what happened to me, I took the worst punishment for my betrayal of confidence. I richly deserved it. My Los Alamos pals were too important to be dismissed; they got a slap on the wrist with a warning not to do it again. Bennie got off scott free. No one knew I had blabbed to him. The Chief Scientist became a hero in the Air Force for forcing progress to be made in our nuclear arsenal. As for me, I got no formal accolades and just about none informally. What I did get was an injunction from the director of Los Alamos telling me I was no longer welcome to visit the lab. This really hurt and put a crimp in my operation. However, not too long afterward another nuclear weapons lab was set up at Livermore in Northern California whose attitude toward sharing information was the opposite of Los Alamos's. So I was able to resume my former *modus operandi*. This relationship, among other things, led to the neutron bomb, which Los Alamos fought bitterly.

In concluding this tale, let me ask you: Did I behave properly? I'll answer for myself: It not only was improper, it was shameful. I lost the confidence of two trusted friends. I seriously impaired a function which others found genuinely helpful. I put my job in some jeopardy and might have lost it. This probably would have ended my career, which some thought valuable to the country; and, starting with my wife, would have caused a lot of misery. For what? My country? Well that's what I thought. I also thought I could genuinely help my country. I couldn't. I still can't.

I had strong beliefs then on our national security, but I had no business acting as though only my beliefs were right. I have strong beliefs now, a lot different from before, that I push at the drop of a hat, no longer being under the government thumb. However, as I did 40 years ago, I still act shamefully on occasion when it comes to people versus my beliefs, and deepen my isolation. I may be here to confess my sins, but I'm not about to convert.

"Revenge is sweet." If you really believe that you should have your head examined. When a dastardly deed has been done to you, as I thought had been done to me by Los Alamos's director, Norris Bradbury, in banning me from his lab; unless you've got legal recourse it does precious little good to get back at the guy who's hurt you. It uses up a lot of time you could spend more profitably doing something else. Besides you risk getting hurt further. You've turned the guy into an enemy who likes hurting enemies. Which is downright stupid. Having said this, with some shame I have to tell you I was bitter enough over Bradbury to want to get back at him sometime.

A couple of years after this incident, Bennie Schriever decided it would be a good idea for the Air Force to expose its development planning ideas to the New Mexican nuclear weapon community, which consisted of Los Alamos (who designed and tested the warheads), the Sandia Laboratory, in Albuquerque (who designed and tested the non-nuclear components — fuses, firing systems, and the like), and the Air Force outfit in Albuquerque I've mentioned. Hopefully, there would be an exchange of ideas between the New Mexicans and the Air Force planners, of which I was one, that could further progress. In effect, Bennie had in mind doing what I had been doing on the QT with Los Alamos. I warned him that although a Los Alamos contingent might show up, he shouldn't expect much cooperation from them. Bradbury, if he came, might act up, especially if he saw me. But Bennie was determined to do what he thought was right. In principle he was right. A conference was worked out. A very morose Bradbury agreed to attend. He became even more morose when he saw me.

The idea was that Bennie and his planners would go through their song and dance on characteristics of advanced nuclear delivery systems. Then I would give a spiel on what kinds of new nuclear warheads would be required for these systems, my main job in Bennie's shop. I faithfully did as I was asked. However, without telling Bennie or anyone else, I decided I would add a dissertation on what I thought Los Alamos was capable of doing in designing future warheads, particularly those for incorporation into ICBMs. I'll explain why I did this.

At that time, Bennie and a handful of colleagues in the Air Force were pushing for an accelerated ICBM program. He had sanctioned a number of studies to come up with performance requirements for a first-generation missile, which if fulfilled would revolutionize strategic warfare. These studies indicated that to have an effective missile a thermonuclear warhead was needed that would produce a yield of a megaton in a 1500 pound warhead weight. Needless to say, with the attitude Los Alamos held toward the Air Force, which had been made all the worse over the Oppenheimer case and the Air Force's role in it, Bradbury wasn't about to give any assurances his lab could accomplish this in any reasonable period of time.

Bennie and his ICBM promoters (I was one of them) knew this full well and sought a means of getting around this problem. The idea was to assemble a panel of the best experts available, under Air Force auspices, to make estimates of what kinds of thermonuclear warheads (size, weight, cost, etc.) might be developed within various time frames. Considering the emotions and politics still surrounding the H-bomb, to compose such a group it was necessary to get someone to head it up whose scientific competence and integrity were beyond reproach, and who was respected by the entire nuclear weapons community. There was only one person who filled this bill. This was Johnnie von Neumann. Only Johnnie stood a chance of keeping these prima donnas from going at each other's throats and fighting all over again the Oppenheimer-Teller H-bomb battle.

Bennie decided to approach Johnnie on the matter and arranged to travel to Princeton's Institute for Advanced Study, headed up at the time by Oppenheimer, where Johnnie (and lesser geniuses such as Albert Einstein) was stationed. The purpose of the visit was to give Johnnie an accounting of Bennie's ICBM planning. Since I had been participating in it and knew Johnnie

personally, Bennie asked me to come along to do the introducing. Johnnie heard Bennie out, pondered his request for a few minutes, and accepted. And became instrumental in making modern military history.

As you might imagine, the panel's activities involved some of the fiercest wrangling imaginable. However, with Johnnie's patience, tolerance and tact, a consensus finally was reached. It gave Bennie exactly what he wanted. With the thermonuclear logjam out of the way, he was able to get cracking, getting the nation's highest defense development priority from the President. As it turned out, when Los Alamos finally got around to testing these warheads, the results substantially exceeded the panel's expectations. In fact, they even exceeded the predictions of the most optimistic guy on the panel — Edward Teller, of course. Which says maybe there was too much ado about nothing over being so specific about the ICBM's warhead requirements.

In fact, there was even more ado about nothing than this toward getting the ICBM program cranked up. In practically every key problem area, including missile guidance and heat shielding to allow reentry into the earth's atmosphere, progress substantially exceeded expectations. (Granted that technological forecasts are little more than a guessing game, there is a moral to the ICBM story that seems long to have been forgotten: When you have dedicated guys like Bennie Schriever who can inspire and ride herd on scientists and engineers developing radically new weapons, tremendous progress can be made; when you don't, and we haven't for years, the result can be stagnation, failure and political chicanery of the worst kind. To drive home this point, just consider such projects as the Stealth bomber and the MX missile, which took forever to develop, cost the tax payer a countless billions of dollars, and have done practically nothing for our defense.)

Okay, back to the Albuquerque meeting. Finally, it was my turn to talk about warhead requirements, which I proceeded to do as requested by Bennie, and then tacked on my own personal estimates of ICBM warheads. This had the audience all perked up since most of them were aware of the great debate going on over the ICBM and how its warhead figured into the equation. (Now if you haven't already seen through me, I've just told you an out-and-out lie. These weren't *my* estimates. They were the estimates of the von Neumann panel. Just before the meeting, someone who shall remain nameless bootlegged the results of the panel report off to me, which I wasn't supposed to see. The report was being held just about as closely, maybe even more so, as the fissile stockpile numbers. Not so much for fear that it would get into the hands of the Soviets but for fear that leaking it out might cause an even nastier political squabble than already existed. Knowing this might happen, what I did was to fudge the predictions of the von Neumann report. Not enough to change significantly its implications, but to be able to deny I'd ever seen it.

With this the meeting turned into a debacle. Bradbury, who had been sitting quietly through the proceedings, now got up and denounced me in no uncertain terms. He allowed it was my prerogative to give my own personal opinions, knowing full well they weren't. Speaking for himself, however, he had no intention of endorsing them, although he already had. Moreover, he denounced the whole idea of making such predictions as utter nonsense. As far as he was concerned, he had no idea what his lab might come up with in the future. For someone like me to tell him, the director, what his lab could do and when was outrageous. He sat down, glowering. With this outburst, from by far the most

prestigious and powerful guy in the room, the meeting petered out and came to an inglorious end. I felt like a motherless child. Nobody bothered to come up to me and ask how I had arrived at these estimates. Even Bennie studiously ignored me, as did his officers in his Pentagon shop, all of whom I considered good friends.

Had I messed up politically? Sure I did and I knew I would, but I had accomplished exactly what I'd set out to do. Which was to get the von Neumann report out into the open as soon as possible to help move the ICBM decision up a bit. In some intangible way I think I succeeded. In triggering Bradbury into this intemperate outburst, I had gotten confirmation of the von Neumann predictions from a very important guy, the most important in the nuclear weapons business at that time, who knew full well where my estimates came from. Poor Bradbury. As soon as he sat down, he realized he had been sandbagged. Everyone else at the meeting knew that too. As for my popularity with Bradbury, I don't think it diminished very much; it was almost zero to begin with. It was pretty clear to me that I'd never see Los Alamos again.

As for my relationship with Bennie, once the meeting was over it was like it had never taken place. My association with him remained strong until he retired from the Air Force.

If you think my behavior at that meeting was vengeful, you're probably right, although I was so wrapped up in self-righteousness I never would have admitted it at the time. However, if you think it wasn't sweet, despite the consternation I had caused, think again. It sure was.

In the way of predictions of things to come, that I'd never see Los Alamos again after the Albuquerque fiasco turned out to be dead wrong. Several years later, when I still was working with Bennie, he called me into his office one day. He had a problem. The Minuteman ICBM was in its final stages of development and, sitting atop the program, he had to make a decision on what kind of thermonuclear warhead to put into it. By "what kind", I'm referring to the choice he had to make as to whether to put in a warhead being developed by Los Alamos or by the Livermore lab, that had matured considerably by then and was in hot competition with Los Alamos. He wanted me to go to both labs, size up their proposals, and report back to him with a recommendation. He was aware that I was still banned from Los Alamos and on the best of possible terms with Livermore, but thought I was capable of reaching an objective conclusion on the matter. I reluctantly accepted Bennie's request; Los Alamos reluctantly accepted my visit despite Bradbury's feelings toward me (he had no choice since this time it was Bennie who was sitting in the catbird seat); and Livermore was delighted no end to be able to push their product to their pal Sam.

Off I went to the labs. At Livermore I was personally hosted by the director, Harold Brown, who later on became Jimmy Carter's Defense Secretary. At Los Alamos, Bradbury refused to see me and put me in the hands of his deputy, an old friend of mine from wartime days. I listened as best I could to both sides (which wasn't easy for me), took copious notes (far less easy), went back home and mulled over the matter. Pretty exhaustively, I might say, for my emotions were, to put it mildly, pretty torn. Finally, I came down on the side of the Los Alamos proposal, for reasons I won't bother to explain here. I went to see

Bennie and told him of my preference and why. He thanked me but gave no indication of what his decision might be.

If you're holding your breath waiting to find out which lab got the warhead you can start breathing again. Los Alamos. If you think, in telling you this tale, I'm trying to gain some credit for the decision, forget it. It's possible I may have influenced Bennie with my analysis of the problem. However, as for the decision itself, I'll requote the Joint Chiefs colonel: "Because it seemed like a good idea at the time." Except in this case it wasn't.

Having gotten the bid, Los Alamos now set about to test the warhead. It was a miserable failure, going off, as I recall, at like about half the predicted yield. Which sure said a lot about my technical judgment. In the meantime, Livermore, having put in so much time and effort on the warhead, was determined to test it. It went off at about twice the predicted bang. There were a lot of red faces around, including mine. However the decision had been made and Los Alamos was now put to work, with help from Livermore, which really had to be humiliating, to bring the bang up to the promised level. They finally did, after a couple more tests.

So what was the upshot of all this? Well, for one thing, soon afterward Los Alamos lifted the ban on me. We picked up a very productive relationship, especially in view of a policy change: being willing to let outsiders know what was going on inside the lab. My relationship with Livermore stayed the same, very good. Bennie finally got the bang he wanted, although he never really knew what he wanted in the first place, nor did anyone else. As I say time after time, these things just can't be meaningfully determined; but the way the game is played by the systems analysts they have to be determined.

As for the predictive abilities of our nuclear weapon designers, although I've been out of the business almost 15 years, I suspect they're no better or worse now than before. Except it doesn't make any difference any more. We've effectively gone out of business. This bothers me vaguely but only up to a point because we've never really understood this business. What bothers me a lot is that in our rush these days to unilaterally slash our nuclear stockpile we're slashing some things that some years down the pike we might wish we hadn't.

Are you in the mood for another nuclear security tale? Great! This one has to do with one of the worst security violations I've ever committed. It could have gotten me and some Air Force officers in a real pickle. Each time I think of this incident I shudder.

As I mentioned, I had established a fine working relationship with the Air Force people at Albuquerque and traveled there quite frequently. On one occasion, I was given permission to go through some Top Secret documents of particular relevance to my work at RAND. Just before leaving I requested copies of these documents be couriered to me in Santa Monica for my personal use. (The documents were quite sensitive and they preferred nobody else at RAND have access to them.) My request was just fine with them, except that to save some time, waiting for a courier to be passing through Albuquerque on the way to Los Angeles, why didn't I courier them back myself. Suddenly I was in the middle of a nuclear Catch 22.

Before I knew what was happening, I found myself with a briefcase containing the documents manacled to my wrist and a 45 caliber revolver containing a clip of bullets. I tried to explain I didn't know from beans about

using a gun. They wouldn't listen and explained briefly how the thing worked. I was so rattled over the thought that I might have to use it I didn't listen. So I tucked the gun in the inside pocket of my overcoat, it was winter and the coat was pretty heavy, went to the airport, brief case in hand, and got on the plane.

Now maybe there was a legitimate reason why I could be carrying a gun aboard the plane. However, I hadn't bothered to tell them I wasn't licensed for carrying concealed weapons. Panic set in once I boarded the plane over someone noticing the gun when I tried to take off my coat, which would have been a real Houdini act considering the manacled brief case. I was certain someone would report it to the stewardess, who would report it to the captain, who would report it to the airport police, who would throw me in jail. (Not to worry, the Air Force officers had told me. If anything like that happened, I was to contact the FBI who would straighten everything out. Which I found of small consolation.) So I decided to keep my coat on. The next few hours were a nightmare.

In those days commercial airplanes traveled pretty slowly. The DC-3 I was on cruised along below 200 miles an hour, about a third that of a modern jet. Moreover, in those days non-stop flights over any respectable distance were rare. On the way to L.A. we touched down in Phoenix, making the trip about 5 hours or so, a long time to be wearing a heavy overcoat at room temperature. In short order I began sweating.

After a while a stewardess came up to me and asked if she could take my coat. I declined, telling her I was suffering a cold and preferred to keep it on. (Were she my mother, she would have been pleased as punch to know that I was doing to myself what she did to me when I was a kid.) To make a long story short, and pardon the pun, I managed to sweat out the most miserable plane ride I've ever taken. Nothing happened, except that I lost a few pounds. Needless to say, I never pulled a stunt like that again. In fact, from then on I refused to travel with any kind of classified material, regardless of how much it might have inconvenienced my work.

When we finally landed, I drove off to RAND, went to my office and put the documents, the manacles and the gun in my safe. The next morning, I went off to RAND's security chief (a retired naval officer), gave him the gun and the manacles, and formally registered the documents. I explained what had happened. To put it mildly, he was horrified. Had he acted properly he should have reported this immediately to the Air Force security people. I hate to think of what the consequences, for me and the officers at Albuquerque, might have been. But for his own reasons, like maybe because we were good friends, or he felt a loyalty for the military, or because until then I had behaved impeccably security-wise, or not wanting to stir up any ill will between RAND and the Air Force, he chose to do nothing. Except to admonish me, but good, warning me this better not happen again.

I've been force-feeding you with so many security experiences, I might as well tack on another, far more traumatic to me than the last one.

During this period I've been discussing, I took one of my many trips back to the Pentagon. While there, I walked into the office of an Air Force colonel, one of whose responsibilities was to check on the status of our nuclear stockpile (still all Air Force). He motioned for me to sit down, got up and closed the

door, and began speaking in a very low voice. He seemed terribly shaken over something. I couldn't even begin to guess what it might be.

"Sam", he said, "the other day a sergeant working at [deleted] stockpile site began one of his routine inspections of the fuses of the [deleted] bombs. The first one he tested didn't check out. Neither did the second, or the third, or any of them. We're working like hell to find out what's wrong, but as of now the damned things aren't working. I'm not saying the Soviets are going to go to war tomorrow, but if they did and we couldn't get these things fixed in time we could be in an awful mess. I'm really scared to death, Sam.

"Now look, I've got no damned business telling you this because it's none of your business. There's also not a damned thing you can do about it. But Sam, this thing has really gotten to me and I real badly need to talk about it with somebody who's not tied up in it like I am and who I can trust to keep it to himself. I'll feel a lot better if I do and I can't tell you how glad I am that you happened to walk in. I'd really appreciate it if you have anything to say and it goes without saying that when you leave this room it's like you never walked in."

Christ Almighty! What could I say except mumble a few platitudes that these things have been known to happen and they'll happen again. And then, pretending to be profound on the state of the world, I told him that I assumed the Russians didn't know anything about this and even if they did they wouldn't be stupid enough to start a war over it. (It sounded pretty sensible to me, but looking back it just about as sensible as Bush's security advisors telling him that it was O.K. for us to go on helping Iraq just a few days before it invaded Kuwait.) That seemed to pacify him considerably and he couldn't thank me enough for my views, which weren't entirely meant to pacify him; they really were my views.

What I didn't bother to tell him was what he knew I knew, that before coming to the Pentagon he had been tied into the development of that fuse. Should the inconceivable have happened and a war broke out, his future wouldn't have been worth two cents. This would have devastated him and me too, for he was one extremely fine person that I trusted as unequivocally as he trusted me. But aside from his fate, what about the fate of the world should, say, the Soviets to have invaded Western Europe while the fuses were out? What if before we could fix them in time to affect their invasion, they had reached the Channel just as Hitler's Panzer forces did? In which case, what could we have done to redress the situation, besides starting all over again what we did in World War II? Which might not have gone over too well with the American people, regardless of how badly we bombed the commies once we got the fuses fixed.

Maybe your mind is working on concocting other scenarios that might have been played out while the fuses were out, including situations where the commies found out they were out. I'm sure you're capable of inventing some pretty awful situations and outcomes, which is how a lot of arm chair generals get their kicks and Pentagon planners make a living. However, in some abstract way the idea that a war might start and our weapons won't work, or not work very well, has to be a bit scary. So to scare you a little more, let me relate another experience having to do with how our nuclear missiles may or may not work.

I've just told you about how the Minuteman ICBM warhead decision was made and how the two nuclear labs, Los Alamos and Livermore, found out, in testing their warheads, something very profound: Don't expect the expected to happen; it might not. In the nuclear warhead business, very frequently it doesn't. Not to panic, though, since when you're in a business you don't know how to run, like a nuclear war, who really cares whether you're exploding a half a megaton, a whole megaton, or two megatons on a target, especially a city. One way or another you're going to do a horrendous amount of damage and the enemy has no better idea of what it means than you do. But maybe you're the type who feels the military really knows what it's up to (in which case you should believe in the tooth fairy too) and what I've just told you has you feeling a little trepidatious. If so, fine! Let me make you even more trepidatious.

Many years ago I was working at an outfit charged, among other missile-related duties, with the care and feeding of the Minuteman ICBM. (It's development took place back in the late 1950s, and today, ancient as it is, is a mainstay of our strategic deterrent.) One day I was chatting with my colleague Pete, an engineer who had been intimately associated with the Minuteman program. "Pete", I asked, "if one day, out of the blue, the Soviets launched a surprise nuclear attack against us and the President pushed the button to release Minuteman in retaliation, how well do you think it will perform?" He pondered for a few minutes and then gave me a visceral answer: "I'd guess that about 10% of them would do what they're supposed to do." Now this guess was an overestimate, for it was based solely on the missiles getting out of their silos and going unimpeded (by all kinds of debris that might be around after the Russian warheads had exploded, and antimissile defenses the Soviets were known to be building) to target.

Not knowing that much about missiles, I was in no position to dispute Pete. But I had become aware of some Minuteman testing that had me believing him. Prior to my discussion with Pete, the Air Force, which had never launched, unrehearsed and on a moments notice, an operational Minuteman from a silo, made plans to do so. The idea was to select a base in the northwestern part of the country and launch a missile over U.S. terra firma and then out over the Pacific to a splash down thousands of miles away. Fine idea, but when the governors of the states the missile would fly over were notified they put up a big stink. The idea had to be modified. The revised launch would have the missile tethered so that it would go up some distance, whatever it was, reach the end of the line, and come back to earth in the launching area where nothing of consequence would happen.

The test was run. It flunked, causing a great deal of embarrassment. So they decided to try again. It flunked again. They gave up. Now this was well over 20 years ago. Does this imply that after all these years of experience with testing and improving Minuteman, the same thing would happen again? We'll probably never know because they'll probably never try anything like that again. Besides, we're now allegedly in such a massive nuclear disarmament stage that who really cares how reliable these missiles are. Practically everybody now agrees that the chances of nuclear war are too remote to take seriously, and any level of nuclear war is too horrible to contemplate. So why worry about how many of these things will work, unless you're the worrying kind. I used to be, but no longer. Whatever happens will happen and there's

nothing you or I can do about it except, as concerned citizens, to pressure politicians to revise our defense and foreign policies to, hopefully, reduce the chances that it will happen.

Now don't go getting any silly ideas that I've run out of security stories. I could go on forever about my personal experiences and my loss of innocence as I got wrapped up in Washington intrigue and infighting, which I lost more and more after the neutron bomb began seriously affecting the political battles going on.

In the summer of 1961, with President Kennedy freshly established in office, a battle royal was going on in Washington over consummating a comprehensive nuclear test ban treaty with the Soviets. The President, like all presidents, badly wanted a treaty for all the obvious political reasons. Possibly he even wanted one for altruistic ones as well. When it comes to nuclear agreements, presidents have a bad habit of acting disingenuously. Some of them act like downright crooks who know full well may be risking national security for the sake of political gain. Some of them have acted incredibly irresponsibly — the most irresponsible of all being Reagan.

Naturally, the Secretary of Defense, a guy named Robert McNamara, and his appointed deputies, fully supported the President. The military, represented by the Joint Chiefs, which doesn't come in and go out every four or eight years, tended to resist the idea. This was especially true for the Air Force, far more wrapped up in nuclear weapons and strategy than the other services. To fight the test ban, the Air Force was willing to go to almost any length including supporting types of nuclear weapons they traditionally despised. This included the neutron bomb which most of the Air Force brass, especially General LeMay, who was about to become Chief of Staff, had fought against and regarded as a threat to SAC. In fact, he was so hopping mad over the neutron bomb he tried to squash it and me, his old pal who had been so helpful getting him big bomb bangs a dozen years earlier. However, as good commies used to say, ends justify means. LeMay was determined to resort to any means to fight the test ban. I wasn't, but I was willing to do whatever I could to help resist it.

One day, LeMay called in some of his aides, one of them a friend of mine. He asked whether the neutron bomb ought to be pushed by the Air Force to fight the ban. He wasn't asking them, he was telling them. They got to work on the problem. Soon after that, I was asked by a friend of mine, an Air Force major general, (who genuinely liked the neutron bomb), whether I would be willing to get together with a journalist to discuss the test ban matter. This was the great Charles J.V. Murphy of LIFE, TIME and FORTUNE, an intimate of founder Henry Luce and an intimate of practically all the top officials in Washington who happened to be tough-minded on defense and foreign policy. Charlie, who became a close friend of mine, not only was *great* because he was, he knew he was. In my opinion he richly deserved to be. He was one of the few journalists on the Washington scene who could objectively combine facts with editorial bias.

Charlie had made his mark during the Truman and Eisenhower years, when we had little use for the commies and saw little opportunity for coming to terms with them. As a colonel in the Air Force reserve, he hobnobbed with the high military brass and civilian officials. He would put in his active duty tours, with full security clearances, in the Secretary of Defense's office, or the Air Force

Chief of Staff's office, or when NATO was commanded by an Air Force officer, in his office outside Paris. Accordingly, Charlie was inclined to write articles favoring the Air Force's position, but he was an honorable man and usually reported fairly and accurately. (As he once admitted to me, when Henry Luce on occasion would ask him to do a piece favoring his, Luce's, position, he would oblige, not necessarily enthusiastically.)

Out of respect for the Air Force major general, who assured me I would not be violating security in any way since Charlie was fully cleared, I reluctantly agreed to meet with Charlie to discuss the test ban — with no holds barred. When I say "reluctantly" it's because until then I had steadfastly refused to meet with anyone in the media, even at the urging of powerful congressmen and senators.

Since highly classified material, including current and advanced nuclear warhead designs, was to be discussed, you're probably guessing our meeting took place in some sequestered room in the Pentagon where Charlie would discuss sensitive matters with high level military and civilian officials. You're wrong. It took place in Charlie's room at the Francis Drake hotel in San Francisco where he happened to be staying at the time. To get there I had to make up some reason to visit at some defense facility in the area. Which I did, but not for long, after which I drove off to see Charlie. What happened in his hotel was a combination of fascination and excruciation for me.

As for the fascination, Charlie, RIP, was one of the most remarkable guys I've ever known. He had a tremendous depth of knowledge and understanding of the world around him, especially matters of foreign policy. With ease he could arrange for interviews with U.S. presidents (he had very recently spent time with Kennedy in the Oval Office) and other heads of state. Matching his profundity was his monumental ego. With few exceptions our dialogues would quickly turn into monologues, as he expounded, in Shakespearean style, on his experiences, while letting on which major players on the world scene he had visited with recently. All this made for a spellbinding time with him in the hotel room, and, many other times, in many other places, usually his living room in Georgetown, in the years that followed.

As for the excruciation, Charlie was a large lusty person who found it impossible to keep his voice down. I had to continually caution him to do so, to which he paid little attention, while I spoke barely above a whisper. Fascinating as he was, I have to say that when I finally left it was with a feeling of enormous relief. And a feeling of shame, for in my mind I had grossly violated the code of conduct expected of someone like myself, trusted by my government to treat classified material as classified material. Even more shameful, during my friendship with Charlie I repeated this performance many times with him. Not that I was unique in such behavior, for on many an occasion, usually in his living room, there would be other pals of his, having or having had top security clearances who would speak as openly as they would within the confines of a secured area. But that's the way the game is played and its always been unofficially accepted.

I'm sure you've long been aware that this sort of thing has been going on forever. Government officials and private individuals with parochial loyalty and bias always have confided in journalists and other media people, knowing that the confidence would be broken and that their institutional views on some national security issue would get out and into the open debate. That's how the

system operates. I never behaved that way, for the simple reason I always acted as a loner and never had any parochial loyalties or biases. I had my strong opinions on these issues but never did I let myself be taken over by any particular faction. For example, regarding the nuclear test ban I discussed with Charlie, although the meeting came about through the Air Force, at that time, largely over the neutron bomb, I had precious little affection for that institution. What we shared was an aversion to a test ban. If it hadn't been for the fact that by then I had picked up a number of powerful supporters for the neutron bomb, I'm sure the Air Force, still dominated by LeMay, would have sacked me.

Okay, so one day Charlie got out his test ban article — in LIFE magazine. It was perhaps the best piece on the issue I'd ever seen, and one of the most highly classified unclassified articles I'd ever seen. I can't describe to you my shock when I read it and how ashamed I was to have contributed to it. The article drew widespread national attention, commendatory and damning, and contributed significantly to the great debate going on. It also drew outrage from the Kennedy administration. In short order Charlie, who already was on the administration's hit list for writing critical articles on the Bay of Pigs fiasco and the incompetence of the Secretary of Defense, was excommunicated from the Establishment. His clearances were taken away and Colonel Murphy, who had expected to become a general, was assigned active duty tours in places remote from Washington, where he worked on such matters as personnel, until he retired in ignominy. As for his journalistic assignments, they too were changed drastically and he suffered through the rest of his career writing on matters he preferred not to write about. A great pity for poor Charlie; a great pleasure for the Kennedy-Johnson gang.

Many times when I would come to Charlie's home for a few drinks, after which we would go out to dinner, I would meet others there. Most of whom I knew, some I didn't. One of them was Allen Dulles, Director of the CIA, who frequently would drop by after work for a drink or two. When I would arrive and Dulles was there, whatever he and Charlie may have been talking about ended abruptly (the things of most interest to them were things so far removed from my professional concerns and levels of security clearances, there was no way I could participate) and we would go through the standard conversational pleasantries while Dulles puffed contentedly on his pipe.

(I remember the first time I met Dulles at Charlie's, who introduced me to him as the guy who invented the neutron bomb. Dulles stuck his hand out and remarked how great an honor it was to meet me. Instead of reciprocating in kind, instead I had to open my big mouth and remind him we had met before; I had come to the CIA to brief him and his deputies on the Bomb. "Oh yes", he said, not batting an eyelash, "I'll never forget that briefing. It was one of the most interesting I've ever heard." So now I open my big mouth again and tell him I was glad he found my talk so interesting but what was so remarkable about his interest was that no sooner did I begin the briefing when he fell sound asleep and miraculously, the moment the briefing ended, woke up and told me what he had just told me. Dulles, who like his brother John Foster Dulles, Eisenhower's Secretary of State was exquisitely versed in diplomacy, smiled amiably and we proceeded to chat away.)

Some years later, as usual after working hours, I dropped over at Charlie's and there, in his living room was a new face. He looked rather familiar, but I

couldn't quite place him and I knew we'd never met before. "Sam", said Charlie, "I'd like you to meet my dear friend Jim Angelton". Suddenly I knew who this guy was. He had been splashed all over the media as the longtime head of CIA counterintelligence who had been fired for being a little too zealous. Angleton, it turned out, in the process of nabbing spies, had broken the old rule that "Gentlemen don't open each other's mail" and violated someone's civil rights. In our great democracy, even when you feel national security is at stake, you just don't do that. Angleton, who was both a gentleman and a scholar, and for my money a man of impeccable integrity, had misbehaved himself and paid the penalty.

There's no point in telling you anything about Jim's background, except to say that in his business he was one of the legends of our time. He's been the subject of many books, magazine and newspapers articles, and TV documentaries; some commendatory, others damning. If you haven't seen any of them and are curious about the guy, you can find out for yourself. It's worth your while.

Angleton, it turned out, had been a close friend of Charlie for many years and like his boss, Allen Dulles, had made a habit of stopping by quite often for a libation or two. Whenever he did, however, and I was in town and also wanted to come over, Charlie would put me off. In those days, the chief of counterintelligence was not to be known outside the intelligence community. Even though I had intelligence clearances during much of this time, I had no need to know of his existence and I didn't. Once Angleton got fired though and the story got out, he became fair game for everyone and had no reservations about meeting anyone. Charlie thought he ought to meet me and that's how we met and became friends. On many an occasion after our first meeting, I would get together with Jim and Charlie and, naturally, we would gab about national security matters, but never what he had done in the CIA. That was fine with me, although I must admit I wouldn't have minded hearing some juicy tales that spy thrillers are made of.

When I said that Jim was a gentleman and a scholar, I meant exactly that. As a scholar he was one of the most widely read and well informed guys on the world condition I've ever met, plus being a poet by avocation. As a gentleman, he could be as courteous and charming as they come, except that he didn't suffer fools gladly. When someone of considerable intelligence (he preferred not to waste his time with those who weren't) would make some inane or illogical remark, which most intelligent people are capable of doing, he would cut them down in a most ungentlemanly fashion. In fact, his behavior and even his appearance (gaunt, soft-spoken, intense) was almost a replica of Robert Oppenheimer. However, regarding their respective view on the commies, they were poles apart. In contrast to Oppenheimer, some of whose best friends had been commies, and who believed we could play ball with the Soviets, Jim hated them with a passion and intensity and saw no chance of getting together with them. Strangely enough, it was the disparate attitudes of these two guys on the commies that led to their mutual undoing.

One evening, after a few drinks at Charlie's, Jim and I went off to the Army-Navy Club in Washington, a place inhabited mainly by a bunch of old military fogies and others tied in with the national security business who mainly talk about the national security business. After dinner, where the conversation had been pleasantly innocuous, Jim suggested we retire to the bar for a while. (If

you're getting the idea he liked to drink, he did; but never did I notice alcohol have any discernible effect on him. He also smoked a lot. It killed him.) By then the bar was almost empty, the oldsters having left to retire for the evening on the early side, as I do these days.

We started drinking and drinking and talking and talking, except that almost all the talking came from Jim. It became apparent he wanted to get a load off his mind. For reasons I'll never know, he chose me as a shoulder to lean on. He was still bitter about having his career forced to an end and feared that the government, including the CIA, was leading the country down the primrose path in its dealings with the Russians. Whereas he was true blue in keeping intelligence secrets, when it came to people, he poured out a list of government officials and guys out of the government of prominence and influence who he thought either were in league with the commies or actually one of them. It was a long list and he had a lot to say about them he probably shouldn't have. Not because he was exposing secrets I had no right to hear, but because, based on his access to these secrets, he was "opening others mail" and reading the contents to me. Which he shouldn't have done, but I think he sensed that what he told me would go no farther. He was right — until now. In what I'm about to pass on to you that Angleton passed on to me, I don't feel I'm breaking any confidence. At no time during the discussion (or monologue) did he admonish me to keep it to myself.

What Angleton told me, over the course of hours until I couldn't stay awake any more (everyone including the bartender were long gone, the lights were off except for a lamp off in a corner of the bar), I can honestly say I've forgotten just about everything, for two reasons.

First, unless it's something having special meaning and importance to me I can put to some useful purpose, regardless of how titillating it may be, unless I immediately take notes I'll immediately forget it. Which happens to be the case for practically everything Angleton told me that evening, which bothers me not in the slightest. You may feel aggravated over being deprived of some fascinating tidbits, especially if you happen to be of a vintage where you remember prominent names of 20 or 30 years ago. (I'm like the 85 year old caddie with 20/20 eyesight who was asked by the golfer "Did you see where my ball went?" "Sure!" said the caddie. "Well, where did it go?" asked the golfer. "I forgot" said the caddie.)

Second, like the 85 year old caddie, although I'm a bit younger I'm old enough and my memory of things gone by is deplorable. Sometimes it can be catalyzed, which has been happening as I write here, where one tale reminds me of another one I haven't thought about for God only knows how many years and probably never would have thought about again. However, there are a few things, virtually all of them related to my life in the nuclear business, where my memory has remained reasonably intact. In this regard, I'd like to pass something Angleton told me that I've never forgotten. This has to do with an honest-to-gosh American-born American who became one of the most admired and revered men in the world. In my opinion, he was about as dedicated to his country's security in the Nuclear Age as Julius and Ethel Rosenberg; and he wasn't even Jewish. It's my belief he did vastly more harm to his country than the Rosenbergs and I don't believe he did so innocently.

I'm talking about a guy by the name of Linus Pauling, born and raised in Oregon in the good old days, around the turn of the century, who went on in

life to win a Nobel Prize in chemistry, richly deserved, and another Nobel Prize for Peace, on the basis of the most fraudulent scientific behavior imaginable. As a chemist he obviously contributed mightily to mankind's understanding of nature. As a politically biased antinuclear ideologue, he was barely interested in the scientific facts of nuclear weapon issues and almost always managed to fault the U.S. far more than the Soviets when bemoaning the nuclear arms race. For a guy whose scientific brilliance was beyond compare, he managed to ignore or make up the scientific facts surrounding the issues of nuclear war and the testing of nuclear weapons.

As for the dangers of nuclear war, regardless of his fabrications and prevarications, there's little doubt this is a dangerous business and most people, especially politicians, tended to go along with him. As to the scientific factuality of his contentions, spun largely from whole cloth, no one could care less. As for the dangers of nuclear testing, this is when we were testing in the atmosphere, this was a matter open to reasonable debate and even though the debate was not reasonably conducted, there was a large amount of scientific data indicating that unless both sides were bent on testing the most horrendous weapons imaginable the world could readily survive. However, as far as Pauling was concerned it couldn't. He argued mightily, and dishonestly, to prove this point, to any audience available.

One guy he argued with was my pal Herman Kahn, who could have won any number of Nobel Prizes, except for peace, had he stuck with science. Instead, like Pauling, he tried to save the world, especially his country, from the effects of a nuclear war he was willing to see fought. In many ways he behaved almost as disingenuously as Pauling, but always with his country uppermost in mind. I remember, many years ago, watching the two of them on TV debating the effects of atmospheric nuclear testing. Time after time Herman would nail Pauling to the wall for outrageous scientific distortion. On each occasion Pauling would shift gears and glibly change the subject, leaving poor Herman gasping for breath. As to who won the debate, intellectually, Herman, hands down. Politically, Pauling won in a walk.

At any rate, in very large measure due to Pauling's efforts, the U.S., despite the most egregious behavior conceivable by the Soviets, was forced to sign and ratify the Atmospheric Test Ban Treaty with the Soviets. And Pauling was rewarded for his efforts by receiving the Nobel Peace Prize. To the best of my knowledge, Herman, who on scientific matters could be impeccably honest and bright enough to be right, got nothing but a lot of negative publicity. Too bad the Nobel awarders didn't have a prize for scientific integrity, for if they did, and they had some integrity, Herman would have won hands down.

In his final years, Pauling was trying to get another Nobel Prize for curing the common cold through massive doses of Vitamin C, but hadn't convinced the medical research community of his great discovery. When I heard about Pauling from Angleton that night at the Army-Navy Club, he told me flat out that Pauling not only was a communist sympathizer but a card carrying commie. When I asked why he had never been exposed by the government, the answer was straightforward and simple: He was politically untouchable. No administration, Republican or Democrat, was willing to try to demonize an icon of peace who was almost universally venerated. Yet these guys were more than willing to put Jim's head on the chopping block for working toward peace, far

more realistically than Pauling, by bucking the political tide in bucking the commies. It really stinks.

As for the Atmospheric Test Ban, I was dead set against it at the time it was signed. As of today, looking back on the results we achieved through underground testing since 1963, and their implications for our nuclear policy, they haven't made much difference one way or another, and if most people feel more comfortable about testing going on this way, well that's just fine with me and I'm all for it. As a matter of fact, if we permanently stopped nuclear testing, regardless of whether other countries did or didn't, that too would be okay with me. Over the last quarter century, all the testing we've done has done little, if anything, to improve our national security. Viscerally, I feel that in an uncertain world we ought to go on testing all kinds of new nuclear concepts; one never knows. But based on watching the world and U.S. policy over these years, I can't muster up one single solitary reason for doing so.

I can give a few theoretical reasons why we might be better off if we stopped this nonsense. Like maybe other presently non-nuclear countries might be induced by our action to cease and desist in their own nuclear developments. This, however, is nothing more than idle unfounded speculation. If non-nuclear boys want to behave like nuclear boys, chances are they'll do so, and chances are we'll do nothing about it.

With the Korean war going on, Bennie Schriever decided I should go over there for a while to see first hand what war was about. So I went. I really didn't find out very much over and above watching World War II movies. However, I did see first hand the Korean people and the misery they were going through. This put a dent in my psyche that had a profound effect on my military theorizing. It was by far the most meaningful professional experience I've had.

Besides wanting me to see a bit of what he had seen a great deal of in World War II, Bennie had in the back of his mind my getting some ideas of how tactical nuclear weapons might be used in these so-called "limited wars". I got quite a few ideas, mainly about the need for discriminate nuclear weapons. (Bennie had been pushing for them and when he pushed too hard during the Kennedy-Johnson years his fabulous career came to a premature end.) In fact, it was this experience in Korea that planted the seeds in my mind for the neutron bomb.

In giving me my marching orders, Bennie cautioned me to stay away from any serious discussions over there about nuclear weapons. If they brought up the subject, fine. If they didn't, I didn't. They didn't. Whatever their opinions on tactical nuclear weapons might have been, they weren't going to risk their careers in speaking out.

Not wanting to get Bennie into any trouble, I kept my thoughts to myself. There were times though when I was sorely tempted to speak with some of the senior commanders I met. They knew the war had become a disaster and might have been receptive to my impressions on what nuclear weapons could have accomplished. On the way home, I stopped in Tokyo to pay respects to the chief of the Far East Air Forces. This was a general by the name of O. P. Weyland, who had become a legend during World War II in tactical bombing. He later became chief of the Air Forces Tactical Air Command, a sharp competitor of SAC. Here was a guy who achieved fame fighting ground wars,

not bashing cities. You would think he would be interested in ideas for putting tactical nuclear weapons on his fighter-bombers.

Weyland was curious to know about my background and what had brought me over there. I answered as honestly as I could, but shied away from any mention of nuclear use in the war. This didn't stop him from asking about my views, which I felt compelled to answer truthfully. As for his response, I might as well have been talking with LeMay, who then was running SAC. I must admit I was taken aback. But who was I, this young punk with zero military experience or expertise, to argue with a bigshot general of such great reputation. I kept my mouth shut, thanked him for his time, and left — hopping mad.

When my airplane landed in Korea, at an airfield a few miles out of Seoul, I was met by a driver in a jeep. We drove to the headquarters of the UN military command in Seoul where I was to be billeted. The first thing that caught my attention was a bridge across the Han river leading into the city. It was a massive concrete structure that not too long before had been the most important bombing target in the war. This was when the UN forces, mainly American, had reversed their original setback and were driving the North Koreans back up the peninsula. Had they destroyed the bridge on the Han, the communists could have been trapped and decimated. This could have had a decisive effect on the war. However, despite repeated hits with the largest bombs in stock, the bridge, so cratered it looked practically like a lunar landscape, remained usable. The bulk of the commie forces were able to cross the river and put up a fierce fight for Seoul and other towns to the north.

Naturally, my first thought in crossing the bridge was that had it been hit by one low-yield nuclear weapon, accurately delivered, early on, the outcome could have been drastically different. We might have significantly shortened the war and suffered far fewer U.S. troop casualties. In fact, some years later I devised a new tactical nuclear weapon concept that operated essentially like a nuclear shotgun. Hypervelocity (much faster than the speed of sound) projectiles could be propelled by nuclear burst with such accuracy that a massive bridge, such as the one on the Han, could be destroyed with far greater effectiveness and discrimination than high explosive bombs. The idea was brought to the attention of the Pentagon during the 1960s. It suffered the same fate as the neutron bomb. It was nuclear even though it produced non-nuclear effects.

My second thought came some minutes later when we drove into Seoul. I'd seen countless pictures of Hiroshima by then, and what I saw in Seoul was precious little different. A city lying in ruins is a city lying in ruins, but in this case the ruins were what was left of a city belonging to an ally, not an enemy. True, we killed tens of thousands of Japanese civilians in Hiroshima, which was not the case in Seoul where most of the inhabitants fled to the countryside as the battle approached. By the time I arrived, the bulk of them had come back to pick up the pieces and start life anew. This was under conditions so wretched I don't know how to describe them.

The poor people walked around with numbed looks on their faces, looking more like zombies than human beings. There were kids drinking out of gutters that also served as sewers. (When I got home I mentioned this to my physician, wondering why they weren't all dead from some disease or another. His answer was that their brothers and sisters were, but they were lucky enough to have

built up immunities.) For the first time in my life I realized there was a difference between watching the war on Fox Movietone news at the theater and watching it without a commentator and somber musical background.

Now I'm no Mother Teresa by the wildest stretch of the imagination. My wife, on occasion, thinks I'm one of the coldest, callused and indifferent (to her woes) persons alive. I'm aware that millions of people around the world, most of them probably pretty decent souls, regard me as the devil incarnate for having invented such a fiendish weapon as the neutron bomb — maybe you're one of them. But I have to tell you that watching these wretched human beings really got to me; I found myself unnerved and terribly saddened. The question I asked of myself was something like: If we're going to go on fighting these damned fool wars in the future, shelling and bombing cities to smithereens and wrecking the lives of their surviving inhabitants, might there be some kind of nuclear weapon that could avoid all this?

After getting myself established in Seoul, I proceeded to take a number of trips into the field, talking to ground combat commanders and, when I got the chance, ordinary enlisted men, feeling a bit closer to them having been one of them in the previous war. I was told about their problems, their frustrations, and quite a few of them expressed deep resentment over the U.S. involvement. I didn't share their resentment; I hated the commies too much, also probably because their life was on the line, not mine. After listening to these guys, again I wondered about nuclear solutions to their problems that could save their hides without devastating the surrounding countryside. This included avoiding such damage to enemy territory as well: Once again, I'm really not all that monstrous. Any kind of human suffering can get to me.

Speaking about the enemy, before getting back to nuclear matters, if you'll excuse me, I'd like to do the inexcusable — tell you a war story. (I've always been bored to tears by warriors telling me their experiences in war.) I do this because it related to my moralizing on war's immorality.

On one of my field trips, with two army lieutenants, one American, the other South Korean, we stopped for lunch in a village, better yet what was left of it, in North Korea. As we ate, we were approached by a very old (or perhaps old before his time) man. The poor guy's clothes were in tatters. He was covered with running sores. His eyes ran with mucous, making my childhood miseries pale by comparison. For reasons I'll never understand, I was only slightly older than the lieutenants and had on a uniform (with no insignia, however), the old man singled me out to beg for food. He looked like he had been eating as much as some of my relatives did in Nazi concentration camps.

He threw himself at my feet, wrapped his arms around my legs, and looked up at me beseechingly. What could I, or any human being, do under these circumstances. I reached into my lunch kit and there was a candy bar which, not caring for candy bars, I wouldn't have eaten anyway. When the South Korean lieutenant saw what I was doing, he reached for his holster. When the American lieutenant saw what the South Korean lieutenant was doing, he reached for the candy bar and took it away. "What the hell's going on here", I asked the American lieutenant, "was he going to shoot the old man?" "No", he replied, "he might have shot you." You have to believe me, I was really scared. Whereupon the American lieutenant explained to me that aiding and abetting the enemy, even feeding an emaciated old man who couldn't hurt a fly and probably would be dead anyway in a short while, was unthinkable to the South

Koreans, who had suffered pretty badly at the hands of the North. With no conscience the South Korean might have shot me. *C'est la guerre*. It stinks to high heaven.

By the time I'd completed my Korean tour, based on the technical work I'd done previously, I had no doubt about the way to go in such a war where the enemy had no nukes to use against you and where the primary target system was enemy personnel. It was to use low-yield anti-personnel nuclear weapons where radiation would be the dominant effect. Moreover, I was convinced that our policy should be based using such weapons from the very start, not waiting until we got ourselves into such a jam, as happened in Korea, that they be used as weapons of last resort. Had we adopted such a policy such wars could have been won in short order, with minimum casualties to our troops, to our allies' troops and minimum damage to non-combatants — friendly and otherwise.

A bee had been planted in my bonnet. When I returned to the U.S., I started shopping around for a new warhead technology that could achieve this objective. Several years later I stumbled on this technology, which strangely enough was being developed for peaceful applications of nuclear explosives. The neutron bomb was born.

At about the time I became entranced with tactical nuclear weapons, so had Robert Oppenheimer and his followers, for very good reasons but not the same as mine. In explaining his conversion to these weapons Oppenheimer had spoken with great eloquence on the moral need for such a capability. He was having a very significant impact on key members of the government, including the Chairman of the Atomic Energy Commission and on Los Alamos which, as a result of the H-bomb battle, venerated him more than ever. At the same time, his enemies, created by the struggle over the H-bomb, became more enraged over him than ever and more determined than ever to get rid of him.

The gist of Oppenheimer's argument for these weapons is pretty well summed up in the following quote from a speech he gave at the time:

"I am not qualified, and if I were qualified I would not be allowed, to give a detailed evaluation of the appropriateness of the use of atomic weapons against any or all such (military) targets; but one thing is very clear. It is clear that they can be used only as adjuncts in a military campaign which has some other components, and whose purpose is a military victory. They are not primarily weapons of totality or terror, but weapons used to give combat forces help they would otherwise lack. They are an integral part of military operations. Only when the atomic bomb is recognized as useful insofar as it is an integral part of military operations, will it really be of much help in the fighting of a war, rather than in warning all mankind to avert it."

When I read this I thought it was about the most eloquent argument for battlefield nuclear weapons I had seen. I had known a number of Oppenheimer's comrades in tactical nuclear arms from my Los Alamos days and some of them were professors at CalTech in Pasadena (more famous for the Rose Bowl than for having one of the world's most prestigious scientific institutions). I set about getting together with them to discuss my ideas stemming from my Korean visit. The Korean war was still going on, most Americans were getting pretty sick of it and the costs and casualties we were suffering. This convinced me we would have a pretty productive meeting. I was dead wrong. They rejected my ideas out of hand.

It wasn't that they disagreed with me technically or militarily. Rather, it was that I was proposing a repetition of the Original Sin; the use of nuclear weapons against Asians, the dropping of the bombs on Hiroshima and Nagasaki. To these thoroughly moral and decent people, and they were, what I was proposing was morally repugnant. To once again use nuclear weapons against Asians would bring down on us the wrath of the civilized world. To them this was an article of faith. It also became a basic tenet of U.S. policy, and still is.

I was beside myself over this rejection, but saw no use in arguing with them, no more than arguing with my wife. So I did what I usually do with my wife, unless I'm bound and determined to act stupidly and try to use some logic. In which case she won't speak to me for weeks. I walked away, so to speak, thanking them for hearing me out.

As I drove back to RAND I pondered what might be going on in their minds other than their aversion to nuking Asians. Finally it dawned on me what bothered them most of all. It was that I had emphasized nuking them with radiation. By this time, most of the world, because of the radiation casualties suffered in Japan and the grisly accounts spread around on how hideous such effects were, held these effects especially pernicious.

I now realized they held to an ideology which held that were tactical nuclear weapons to be used, which they advocated, it would have to be somewhere else than Asia and against a different kind of people; namely, in Europe against Caucasians. Even though they knew full well there would be widespread radiation effects, they preferred to view these nuclear weapons as super conventional weapons for the physical destruction of the enemy; his bridges, tanks, artillery, aircraft, etc.

Although I had worked and been very friendly with a couple of these fellows at Los Alamos, where they had gone into a frenzy of jubilation on the eve of the Hiroshima bombing, I was so incensed I never bothered to see them again. I wouldn't go out of my way to see them today, if they're still alive. However, were I to bump into them for some extremely improbable reason, I would apologize for walking out on them before trying to understand their views. Had I remained, restrained myself, and gotten into a discussion of the political and moral aspects of the problem, it's possible we might have parted on more friendly terms.

The irony of it all is that today, on a right-left hawk-dove basis, on many military issues, especially defending NATO, I'm well off to the left of where these guys were almost a half-century ago, and far more dovish. As I see the world today, I have little gumption for the U.S. going to war someplace for someone else's interests.

Another scientist from CalTech, not at this meeting, was a good friend of mine who frequently consulted with me at RAND. He was a physicist of international reputation who had done pioneering work in nuclear physics and understood radiation and its effects as well as anyone around. He was also one of the few professors I was willing to listen to and he taught me a lot.

One day he dropped into my office for some consultation. He noticed a metallic cylinder on my desk about the size of your thumb. He picked it up, juggled it in his hands and allowed it was pretty heavy for such a small size. He asked what it was. I told him to guess. He started guessing. All his guesses were wrong. Finally, he gave up and asked what it was. "Milt", I told him, "you're

holding a hunk of uranium.” (What he had in his hands was a hunk of natural uranium metal which contained less than one percent of the kind used in nuclear weapons, and had to be refined at enormous cost to separate out the bomb stuff. The piece Milt was holding might have been worth a quarter or so, a minute fraction of the cost of the stuff that goes into bombs. I had swiped it as a war souvenir when I left Los Alamos.)

When Milt realized what was in his hands, he turned white. He put it down and promptly excused himself, saying he had to go to the bathroom. When he came back, his hands were scrubbed raw, not for hygienic reasons, but to make sure he wasn’t contaminated with radioactivity. Now the truth of the matter, and Milt knew this, was that he could have held it at any point of his anatomy for weeks and months without endangering himself in any way. This he knew, intellectually. Emotionally, however, he was a nervous wreck for a while. Needless to say, some years later when I invented the neutron bomb, Milt had few kind words to say about it. He never explained why. He didn’t have to.

As for the kinds of tactical nuclear weapons Oppenheimer was pushing for the defense of Europe, although they generally had yields far smaller than those in the SAC inventory, some of them were comparable to the bomb that leveled Hiroshima. To be sure, they would have wreaked havoc with the Red Army, but at the same time some German cities were going to be pretty well banged up. If their use kept Europe out of commie hands without risking all-out strategic nuclear war, where we would get banged up but good, as an American that suited me just fine. (However, it never suited the Germans very much and ultimately they forced these weapons out of NATO.) Moreover, I vastly preferred using them over conventional weapons, that never stood a chance by themselves of holding back the Red Army conventional forces. The trouble was that the Air Force dominated military had no use for Oppenheimer’s ideas. When NATO decided to amass a tactical nuclear stockpile his ideas were ignored. What emerged was mainly a junior version of SAC. A great pity, I believe. Allow me to explain how this came about.

One of Oppenheimer’s cronies in promoting tactical nuclear weapons was Lee Dubridge who became president of CalTech after the war and remained so for many years until he became science advisor to President Nixon. As a consequence of the Korean war, CalTech became heavily involved in defense matters, especially ground warfare, and directed a study for the military. Dubridge was the consummate scientist-politician who during World War II had directed the famed Radiation Laboratory at MIT which was instrumental in radar development. His acquaintances in both the scientific and military community were many, one of them being Dwight Eisenhower. At the time of the study, Eisenhower had left Columbia University, as president, and gone back to active Army duty as NATO’s first military chief (Supreme Commander, Allied Forces in Europe). Dubridge arranged for the study, known as Project Vista, to be briefed to Ike and his staff, with special emphasis on giving NATO a tactical nuclear capability.

Ike was persuaded this was a good idea and before he left to run for the presidency he ordered a study group set up to establish requirements for these weapons. It was very much to Ike’s credit, I believe, that he accepted the need for these weapons. However, I doubt he ever shared Oppenheimer’s basic philosophy for them in the slightest. This became abundantly clear to me when

he became president, even though he ordered the production of thousands of these things. It became clearer yet to me when I met him 10 years later and briefed him on the neutron bomb.

In 1952 I had completed a small study on tactical nuclear weapons for NATO. I was requested to take a swing around Europe, briefing it to various U.S. commands, practically all of them Air Force. Even though these weapons were to be used for the defense of our European allies, the secrecy surrounding them in those days was so tight that they were not to know how they worked and what they did. What went on inside a bomb casing was none of their business.

When I arrived at Wiesbaden, Germany, headquarters of the U.S. Air Forces in Europe, where the nuclear study group was being set up, which figured since the Air Force still monopolized the nuclear stockpile, and briefed my study, I was invited, better yet commandeered, to join the study. None of the officers there knew from beans about nuclear weapons and they wanted someone around who knew something. Before I knew it, the study director, Air Force Colonel Hal Watson, with whom I became very friendly, had put me to work as a special advisor to work with his officers and give him my views on how the study was coming along. (To give you an indication of how powerful the Air Force was in the nuclear business in those days, Colonel Watson's Army deputy was a major general.)

Needless to say, for the above reasons, this was an all-American study team. The only foreigners allowed in were German cleaning women who frequently would be doing their duties during our working hours, where Top Secret documents cluttered desk tops and little effort was made to restrict discussion while they were in the room. Which had me praying that their command of English was as good as mine of German. Whether or not they had been screened to make sure they weren't commies, I didn't know. However, just a few years earlier we had bombed a large part of Wiesbaden to smithereens, which was still largely in ruins when I arrived. I wouldn't have expected them to be too sympathetic to the American occupiers. But mine was not to reason why, and I never bothered to ask Watson why he didn't get some U.S. privates to tidy things up, as they were doing in their barracks.

As the study began shaping up it became obvious the ground rules and outcome already had been determined. The master plan was to refight World War II in Europe where the principle Air Force targets were those that couldn't be reached by the Army or Navy. Among other things this involved bombing airfields and interdiction targets such as key bridges and railroad yards that facilitated the movement and supply of enemy troops. As in World War II these were very tough targets to knock out with high explosive bombs. They were even tough to knock out using nuclear bombs, primarily because the accuracy of our bombing hadn't improved over that of World War II. We were now using jets and in those days, before the era of "smart bombs" such as we used against Iraq, the faster you flew the poorer your accuracy. Putting these two factors together, target toughness and lousy bombing accuracy, if you were hell bent on destroying one of these interdiction targets with nuclear weapons, one very big bang was required. As the study progressed requirements for bombs many times more powerful than those dropped on Hiroshima and Nagasaki emerged, not quite what Oppenheimer had in mind.

The main, almost the only, concern of the officers participating in the study was to destroy the targets. Whereas they had no demonic desire to kill civilians and wipe out their cities, it just so happened that most of these targets were in big German cities. Had these bombs gone off the civilian carnage and destruction would have been God awful. Some calculations indicated there might be millions of civilian deaths.

Now you might think that as a nice Jewish boy whose brethren had suffered at the hands of the Germans, I could care less. I did care, however, undoubtedly as a result of my Korean experience where my innocence on war had been badly shaken. As for the Air Force officers, they were mainly a bunch of guys who a few years earlier had been bombing German cities, and risking their lives in the process. What bothered me had no real meaning to them. The only thing that counted was that if there was to be a war we should win it using any means available. German lives had no meaning for them. I went to see Hal Watson, a genuine war hero, and told him of my misgivings. I also told him of my Korean tour and complained that nobody seemed to be paying serious attention to nuclear operations on the battlefield, where the real carnage of American troops would be going on, and explained how effective low-yield weapons emphasizing radiation could be. He professed not to know what I was talking about and explained to me that there was only one way of killing a battlefield target, be it a tank battalion, an artillery brigade, or any enemy ground unit that depended upon people for its operation. This was to bust up everything in sight and then send in reconnaissance airplanes to take pictures to see how many tanks, artillery pieces, what have you, were knocked out. You had to *see* what happened, not make some esoteric calculations of what might have happened to people a camera couldn't see.

It was pointless for me to pursue the matter any longer. I told Hal I wanted out. He was genuinely sorry to see me go, but he understood. We remained good friends until he retired. When I last heard of Hal he was tied up in helping emotionally disturbed kids, one of which happened to be his. (He's now dead.) As a human being, that's a lot more than I can say about myself.

When the study was over, Oppenheimer's goals had been demolished, plus any hopes for using tactical nuclear weapons in any credible fashion for defending Europe. By then Eisenhower was in the White House with a gang of advisors who saw nuclear weapons purely in terms of military effectiveness: civilians, friendly or otherwise, be damned. When the neutron bomb came along, at the end of Ike's tour, some of his advisors began having changes of heart. One of them, I suspect, was Richard Nixon. Had he become president instead of Kennedy in 1961, it's possible the situation might have changed in the direction of a more discriminate tactical nuclear stockpile, including neutron bombs; but we'll never know.

When Kennedy came into office, in very large measure thanks to some of my RAND compatriots, our tactical stockpile remained of the most destructive proportions. Even though we had no concrete evidence on the nature of the Soviet stockpile, which was beginning to approach ours in size, there was a lot of doctrinal evidence it would be on the discriminate side. Nevertheless, they were assigned, mainly by my RAND buddies, a stockpile far more destructive than ours. Ergo, a nuclear war in Europe was unthinkable. Our only hope was to try and match them in conventional capabilities. This we tried to do, but American and European taxpayers refused to foot the bill. This did not deter us

from spending hundreds of billions of dollars on a non-nuclear strategy for NATO's defense having no logical underpinnings, a strategy founded mainly on hopes and lies. Not the best way to run a railroad, but so what: By the grace of God and Marx we lucked in. The great war for Europe never materialized and the Cold War finally came to an end. As of today, chances for a hot war are indeed remote, at best. But when you hear this idiocy from our strategists and politicians that our supremely rational strategy and military force buildup forced the commies to pull back and away, don't believe a word. And don't thank God for this blessing; thank Gorbachev who's got nobody to thank for his country's military demise but himself. Had the Cold War turned hot instead, the apparent overall Soviet military advantage over the West probably would have given them victory.

Had we paid more serious attention to Oppenheimer, it's entirely possible, I believe quite probably, we could have had the same happy ending to the Cold War a lot sooner and at a far smaller cost to our economy. In saying this, I'm trying to be logical, based on technical facts, not ideological convictions on a world that may never have existed. However, as I say time after time, where ideology prevails there's no room for facts, only for fabrications. Am I still angry over this irrationality which has had such a profound effect on my country? Sure I am. I'm even angrier over myself and more than a bit ashamed. I've been so intolerant of so many concerned well-meaning people who've gone along with all this. I can't join them. It's impossible for them to join me. I don't exist any longer. As my older son would tell me, I'm history. If I want some solace. I can tell myself it's been quite a history. As one of my favorite comics, Abe Burroughs, used to say, "If I had my life to live over, I'd live over a delicatessen." This my cardiologist would never let me do. Nor would my mother. If they knew the life I've led I doubt they'd want me to repeat it. I wouldn't; not that I have the wildest idea what I might have done instead.

Maybe I should have stuck with grave digging. In which case I probably would have led a far healthier, happier, more tolerant and more respectable life.

Okay, I've been giving you a thumbnail sketch of my experiences in the development of our tactical nuclear policies. The story hadn't quite ended when I gave you this account. Several years after these policies were cast in concrete, the neutron bomb burst upon the scene causing a national, even a global, debate. It lasted a dozen or so years that in terms of passion, intensity, distortion and prevarication made the H-bomb debate pale by comparison. This debate — its nature and some of the characters involved in it — will be the subject of the next chapter. However, I'd first like to make a few observations and comments on our strategic nuclear policies, again based on personal experiences. On the warhead delivery side, involving things like bombers and missiles, since I never knew too much about these things I wasn't competent to work on them. However, since I did have a close association with many of those who did toil in these vineyards, I was able to see at close hand how these fellows operated and get some feeling of what motivated them to develop these weapons.

As for the weapons themselves — bombers, missiles, submarines, aircraft carriers — if you're curious about them, go off to your local library. You'll have enough reading material to keep you busy for years; and you'll end up knowing far more about them than I. If you think, after acquiring all this

knowledge, you understand the purpose of these weapons and how they can be used to fight a nuclear war, forget it. They can't.

You'll also find out about some people importantly associated with the development of these weapons. To what degree, I don't know. I suspect, however, it will be pretty superficial. They're people who have made their mark on military history (good for them). What kind of people they were I doubt you'll ever find out. If you really want to find out your best bet is to hunt up old folks like myself who have no qualms in saying uncalled for things about others they've worked with and fought with. Unlike myself they'll be unlikely to feel any shame over some of the things they've done. Or thought if they're willing to reveal what they thought.

With this backdrop allow me to prattle away on these strategic weapons, how their development related to the policies underlying their use. In many ways the evolution of our strategic policies has been very much akin to the tactical issue, with one fundamental exception: We've never been really serious about using tactical nuclear weapons (in an ally's back yard); whereas we've been grimly serious (or at least claimed so) about using strategic weapons in the back yards of countries who threatened our allies, who also had them and could respond in kind. And despite official statements to the contrary, we've been totally unserious about protecting ourselves against what these countries might do to us. I've found that intolerable. Most Americans haven't and I've been intolerant of them and let it be known. This was shameful of me, as I've finally come to realize. I apologize to them but I won't give an inch in my resentment against our government policy makers.

I've given you a few tidbits on some of the things that went on in the early days of our ICBM program, like General LeMay telling me he didn't expect to see these missiles deployed during his lifetime. He just plain didn't like anything without a man in it and made that very plain in expressing his requirements for SAC. (Even after the ICBM got a presidential green light to proceed full speed ahead, LeMay didn't change his mind one bit, still not expecting it to pan out as a useful weapon. Around this time, my journalist friend Charlie Murphy interviewed him and asked what his ten top priorities were for SAC. "Well", said LeMay, "First, there's a follow on to the B-52 [which is still around and mercilessly bombed the Iraqi soldiers in the Kuwait desert during the recent Persian Gulf war]. Second, there's [I don't remember, but it had a man in it]. Third, there's [I also don't remember but it also had a man in it]. And tenth there's the ICBM." "What about four through nine?", Charlie inquired. "I don't know", LeMay replied, "give me some time and I'll think some up.")

I've already mentioned Bennie Schriever's dedication to the ICBM and his relentless efforts to get the program, which he directed, underway. There were also a few other guys in the Air Force who pitched in to push the missile. The most forceful and successful was a guy you've probably never known about, and if you did you've probably long forgotten about him. I'm talking about Trevor Gardner, a dedicated behemoth who I came to love only after he died.

I never knew Richard Burton. All I know about him is what I read about him; a wild, rambunctious, brawling, coarse and usually obscene, hard-drinking (to the point of alcoholism), womanizing, terribly bright Welshman. I never read anything about Trev Gardner's comportment. However, I happened to

know him. In every way Trev, born in Wales, fit the above description of Burton. As for his acting abilities, he didn't have to rehearse his lines; he made them up on the spot. They were frequently offensive; they also were priceless.

In giving credit to those who contributed most to the U.S. ICBM, having been in, as an outsider, on the program from the very beginning, I would find it difficult to select anyone from a not-too-long list (most of them foreign born like Trev, Bennie Schriever, Johnnie von Neumann, and some others) for prime ranking. However, I would say this: Were it not for Trev, heaven only knows when the program would have gotten off the ground. When it finally did, heaven only knows how much longer it would have taken.

Trev came to the Pentagon in 1953 as top assistant to the Secretary of the Air Force for research and development. He came as one of the most dedicated Americans I've ever known, tremendously grateful that his adopted country had given him the chance to rise high in life. He came as a guy determined to do what he thought was right and necessary for his country. When it came to fighting for his beliefs he could be one of the most brutal, intimidating uncivil persons I've ever come across. As you might guess, dealing with the military brass as much as I have, I've seen some pretty rough tough foul-mouthed hombres. Compared with Trev most of them were Caspar Milquetoasts.

Unlike the great bulk of civilians who come to the Pentagon from industry to play ball with the military for a few years, work up a lot of good will, and then go back to far more lucrative jobs than before, Trev had only one objective: to do what had to be done, letting nobody stand in his way. When he hit the Pentagon he made it clear, in his own delicate way, to the Air Force generals "You give me any problems and I'm going to cut your fucking balls off!" He meant it. The generals knew he meant it.

By now, Bennie had been promoted from colonel to general. As far as Trev was concerned, Bennie was just another general. Poor Bennie, he would go to Trev's office to brief him on one thing or another and get treated like scum. On the other hand, Trev began to realize Bennie was not just another general peddling the Air Force party line. Their relationship, while not exactly cordial, became one of mutual respect. Largely because of being brought up to date by Bennie, Trev became an impassioned ICBM proponent and rammed the missile into and through the bureaucracy. He was indispensable in getting the program going. At the same time he sowed the seeds of his demise by offending practically everyone and making enemies that finally did him in. Not by cutting off his balls but by easing him out of power and forcing him to resign. They didn't need a Delilah to render him helpless; he provided his own, far too much bourbon. He became so fractious he was judged a security risk and that was that. A terrible ending to a brief awesome career, from which he never recovered. As for the Pentagon Temple, its walls remained intact.

Through brute force, Trev was able to overcome the bureaucratic and institutional obstacles and get his case before President Eisenhower. The rest is history. If you're inclined to want to know something about it, go to some reasonably sized library and search its computerized card catalog. In no time at all you'll have a stack of books to check out that will keep you busy for months. You'll find out a hundred times more about how the missile works, its chronology, and those who developed and built it than I've ever been interested in knowing. You'll undoubtedly get the idea the decision to develop and build

the missile came about in a well-reasoned orderly way. And you'll be dead wrong!

In part it did; you don't make a multi-billion dollar decision without some thought process involved. In the main, though, the decision came about because a raging bull had been let loose in Washington. The decision to go for the ICBM was a rare exception to the JCS colonel's conclusion that "it seemed like a good idea at the time." When Eisenhower made his decision to give it top priority it was because, thanks to Trev, he *knew* it was a good idea.

If you decide to read up on the history of the ICBM, you'll find out about the roles that Trev, Bennie and many others played. What you won't find out, I suspect, is how Bennie got the job of running the project. It's a tale involving three of the most iconoclastic (but drastically different) individuals I've known.

Enter Vince Ford. In the early 1930s, Lieutenant Vincent T. Ford, U.S. Army Air Corps, had his extremely promising career (he was first in his class at flying school and had come to the attention of some of the majors and colonels who became generals and legends in World War II) come to an abrupt end when his fighter plane collided in mid-air with another one. He spent the next couple of years in a hospital, after which he was discharged, with a horribly mangled leg that never healed and left him with a limp that only worsened as time went on. Vince resigned himself to a non-military life. Then World War II came along and he was able to plead his way back to active duty and got himself a desk job. When the war was over, physically disqualified as he was, he managed to get back on active duty.

Having had a technical background in college, he wound up in a Pentagon shop run by Bennie Schriever. He became Bennie's closest friend and confidant and remained so throughout their careers.

What did Vince do for Bennie over this span of some 20 years, during most of which I was closely associated with them? To be honest, I really don't know. Vince was a "people person" who managed to know practically everybody who was anybody in Washington having to do with national defense. As Bennie worked his way onward and upward, Vince was always there to steer him through the Washington jungle. Exactly what he did, in limping through the Pentagon, the White House, the Congress, wherever, again I don't know. (One thing he never did was to get married. Throughout his Air Force career he maintained a bachelor pad in Alexandria, VA where his cronies, such as Bennie, and later myself, would come after work for a couple of drinks and shop talk.)

When Trev came to the Pentagon, Vince left Bennie and was assigned to Trev as a military aide. In no time at all, he established the same relationship with Trev as with Bennie, doing the same things he did with Bennie, whatever they were. Needless to say, whenever possible Trev would drop by Vince's pad (dubbed "The Alley" because it faced an ancient cobble stoned alley going back to Revolutionary War days, or even before) for more, usually much more, than a couple of drinks.

One evening Vince returns to The Alley from wherever he's been. (In civilian clothing; never during the almost 20 years I had known him as an Air Force officer did I see him in uniform. He did have one, which remained in a closet. Although he retired as a colonel, his unworn uniform had major's insignia on its shoulders.) Trev already is there and already tanked up, with something heavy on his mind. He gets right to the point.

“Vince, I’ve got a problem. Who the hell am I going to get to run the missile program? I’ve got all the money I can use and I’m going to need a pretty senior general to run the show. It’s gotta be a major general who knows how to get along with the system, or else they’ll screw him but good, and you know damned well they’re going to try. I’ve worked up a list and I want to try them out on you. I’ve got one guy in particular that seems pretty good.”

So Gardner goes through the list, looks at Vince, and says “Well, what do you think?” “I think you’ve got the wrong list, the wrong guys”, says Vince, “I’ve got my own list — of one.” “Who’s that?”, says Trev. “Bennie Schriever”, says Vince. Trev explodes.

“That goddamned sonofabitch! For Christ’s sake, Vince, he’s a fucking egghead. Sure, he’s a real bright guy, a fine planner and even if I don’t particularly care for him I’ll admit he’s helped me a helluva lot. But what the hell does he know about getting these fucking contractors in line and dealing with these bastards back here who’ll cut his throat the first chance they get. Vince, you’ve got to be out of your fucking mind.”

Vince, who’s the kind of a guy who thanks the waiter for bringing the bill, thanks him again when he pays it, and tips twice as much as he should, even if the service is rotten, lashes back at his boss. He tells Trev in no uncertain terms he’s never tried to understand Bennie, who not only is the smartest of the batch but can be as tough as nails when he has to but also knows how to get along with technical people and defense contractors. “He’s your only man, Trev”, says Vince, “if you want somebody else go ahead, but count me out.” There’s a long silence, ended by Trev telling Vince “Fuck you!”

The job was Bennie’s. Bennie, who had just become a brigadier general, had no idea he’d even be considered and wasn’t quite sure he would take it if he was. He had been telling me he was getting tired of having to deal with the Air Force bureaucracy. Since he had come up as a flyboy, he wanted to take over some tactical fighter unit in the field. (LeMay never would have given him a command in SAC.) This would have diversified his career and enhanced his chances for moving up the ladder.

Now before finishing this brief account of how more than a little history was made, I’ll answer the question that must be burning a hole in your skull: How can this guy, myself, unless he thinks he’s writing a movie script, be telling you all this in such great detail when he wasn’t even there? Real simple: Vince told me all this, and a lot more, when we were writing a movie script about the ICBM. Everything I’m saying here is out of the script. So let’s continue.

On many an occasion, to get out of the Pentagon, Trev and Vince would go across the Potomac to a rathskeller called “823” in downtown Washington. (I’ve been there with Vince countless times.) A very popular place, “823” was always jammed with Washingtonians discussing politics and that sort of stuff, so loudly that as crowded as it was you could discuss the most confidential matters with no possibility of being overheard at the next table.

On this occasion, they were sitting at their regular table, Trev swigging down Old Forester Bourbon and telling dirty jokes to his favorite waitress. In walks Bennie, who Vince had invited to join them, without giving any particular reason. Gardner looks up coldly and indifferently at Bennie, as usual, and says nothing. Finally he motions Bennie to sit down and motions the waitress to get him a drink. There’s more silence. Bennie’s going crazy with

wonderment. Why would his pal Vince subject him to this? Then Trev looks at Bennie and asks him “How would you like to run the ICBM project?”

Bennie, who can be one of the most barbarically blunt guys I’ve ever known, fixes Trev with a hostile stare and tells him, “After all the crap I’ve taken from you for nothing I’ve ever done to you, why the hell are you offering me this job and why the hell should I take it?” More silence. Then Trev says “Vince thinks you’re the guy for the job, the only one who can make it work. That’s good enough for me. Will you take it?” We know what Bennie’s response was. A few hours later, the three of them finally leave, drunk, their arms around each other, inseparable friends for the rest of Trev’s all-too-short life.

I’ve known Bennie for almost 50 years by now; I’ve seen him under moments of great strain and misery, professional and personal. But I’ve seen him really cry, uncontrollably, only once, at Trev’s funeral, which I attended. Also in attendance were a number of defense contractor executives who largely owed their success to Trev. Not one of them shed a tear over his passing. (Most of them wouldn’t have come if it weren’t for the fact that Bennie still was on active duty and might have taken offense if they didn’t show up. No defense contractor would ever risk the wrath of a four star general in charge of his contracts.) One of them was Simon Ramo, the “R” in the TRW corporation. I’m sure you’re familiar with TRW, possibly because they messed up your credit rating several years ago. I knew Si Ramo somewhat over quite a few years. What I knew of him, including some direct experiences with him, left me with a very sour taste in my mouth. Most other people, including Ronald Reagan, who gave him the Presidential Medal of Freedom for his remarkable accomplishments (and they were) didn’t share my opinion, one possible exception being Trev Gardner.

Once Bennie got the ICBM program, he decided he needed a group of technical advisors to help him monitor the program full time. Having known Ramo, who had very successfully directed an air defense missile program for the Air Force, Bennie asked him to form a small company of highly competent scientists and engineers, to perform the monitoring job. Si accepted and as a result rose to great fame and glory — and riches, and I mean *riches*, which was what he had in mind from the very beginning. Which Trev Gardner saw from the very beginning, which reminds me of another Trev episode told to me by Vince.

Shortly after the program got underway, a meeting was arranged at Bennie’s headquarters, which previously had been a Catholic elementary school, in the Los Angeles area. The purpose was to discuss the overall missile development plan. All the major domos associated with the project were there. It was a very distinguished group. Besides Bennie and, of course, Trev (who had put aside most of his Pentagon duties to make sure things were going well with the project and people were behaving themselves), there were such scientific luminaries as Johnnie von Neumann, Jerome Wiesner of MIT (who later on would become its president as well as John Kennedy’s science advisor in the White House), and George Kistiakowsky of Harvard (who played a key role at Los Alamos during the war and was to become Eisenhower’s science advisor and, like Ramo, win the Medal of Freedom). And there were some captains of defense industries associated with the project. Of course, Si Ramo also was there.

Bennie started the proceedings by outlining his plans for moving ahead with the missile. He made it clear to the defense contractors that this was not going to be just another Air Force program designed to Air Force specifications, because there weren't any. He was taking an approach that never had been taken before by the Air Force — to design and develop a weapon whose characteristics were yet to be determined, totally foreign to the Air Force requirements people. He told them they had essentially an open ended budget (thanks to Eisenhower) and no definite date for completion, but "If you guys have any beef with me on how I'm running the program, you're to come to me. If I find you're going around end, complaining to some congressman or anyone else in Washington, I'll cut your goddamned throats." (I've seen Bennie go through this act many times and you've got to believe me when he decides to get tough he can be the coldest, hardest, meanest guy you've ever seen.) He then went on to ask for any comments they might want to make. There weren't too many.

Then he turned to Ramo, telling him "Si, you're in charge of the technical direction of this thing. I want everyone to know exactly what you have in mind — your plan of action, major technical benchmarks as best you can see them happening, and so on. We're all in agreement we're not trying to meet specifications we all know we can meet. What's pacing this project are some technologies we don't fully understand and we're going to have to overcome some pretty goddamned tough technical obstacles to do the job right. Okay, what do you have to say?"

Ramo, a highly accomplished violinist, probably because he had the tremendous advantage of being Jewish (my mother wanted me to take violin lessons when I was a kid, which I refused to do when she broke her promise and refused to get me a two-wheeler bike, leaving me almost the only kid on the block who wasn't taking lessons), now gets up and puts on a real virtuoso performance — eloquence, supreme confidence in his company, total commitment to the project, and all that. However, as the sonata continues, gradually it's becoming apparent that not only is Si 100% committed to Bennie, he's also 100% committed to his new company, and himself. He's letting on that he has other things in mind down the road for his company, like such concrete things as developing and producing commercial products based on the technologies coming out the ICBM program. (Hardly unique, I might say. In those days, and ever since, there have been plenty of highly ambitious and talented entrepreneurs who have gone from military rags to industrial riches by latching on to defense programs and then exploiting their experience and contacts to get into the business of making real money.)

Up until now, Trev has been sitting very quietly, taking in the show. That is, until Si, in his siren's song, says something that Trev can't stomach. He now speaks up, saying, better yet screaming, one word: "Fuck!!!" The song is ended but the melody doesn't linger on. Si stands there paralyzed with shock. Everyone else sits there in stark disbelief that Trev, who they all knew and knew his vocabulary included words not in your dictionary when you were in grade school, could do such a thing.

Obviously, Trev had made his point. With that, the civilized thing would have been for him to let Si recover and continue, somehow or another, to save face. But Trev, who was hardly civilized and rarely civil under such circumstances, was hardly about to let up on Si and let poor Bennie get the

meeting back on track. Instead, he follows up with an X-rated performance Richard Burton never could have given, at the end of which Si has been reduced to an ashen trembling pulp. He tries to say something in response, but the words can't come out. Instead there's a croaking, bordering on sobbing, gasp. Trev still isn't through, and he now goes through an expletives undeleted diatribe on just how this program is going to be run. He makes it very clear what's going to happen to any contractors who cause any problems for Bennie. Needless to say, everyone got the message. As I've said, it was a fantastically successful project; something that hasn't been repeated since Trev left the Pentagon.

Were Trev alive today and in his former job, I can guarantee you that such messes, even scandals, as the MX missile and the Stealth bomber, wouldn't be going on. But there I go with my fantasizing: The last thing in the world the Defense Department, the defense contractors, Congress and the President want to see is a second coming of Trev. It's like daydreaming of getting another Teddy Roosevelt in the White House. These kinds of guys don't exist anymore and if they did they'd never get to first base. The country wouldn't let them.

Regarding Trev Gardner, once upon a time there were people in defense industry who had the same kind of dedication and toughness to give some respect and credibility to the business. One such guy was someone I worked with and got to know when I was a nuclear advisor in a small planning shop working for the corporate management at Lockheed Aircraft. I'm talking about one of the grandest guys I've ever had the privilege to know: Clarence "Kelly" Johnson, who we lost several years ago. In describing the run-of-the-mill management types in the defense industry these days, Bennie Schriever recently has depicted them to me as the kind of guys who would cut their grandmother's throat to make a buck. From what I've been reading in the papers over the last several years, with one scandal after another in the industry, with guys being indicted and even sent to jail, I'm sure that Bennie's description was right. I suspect the first to agree with him, had he been with us, would have been Kelly, who spent a lifetime working with these guys.

But let's get back to once upon a time. I'm talking here about the early 1950s when many top defense contractor executives still basked in the glory and satisfaction of what they had done to help win World War II, and they did an enormous amount, and still had their dedication. Kelly was one of them, at the top of the list of all I ever met and I did meet a fair number of them in one connection or another.

Before getting around to telling one more tale about how we once set about developing new strategic nuclear weapons systems, I'd like to remind you that Kelly was the guy who directed the famed U-2 spy plane and its successor the SR-71, called the Blackbird. He also was in charge of developing our first jet fighter, the F-80, and heaven only knows how many other things. He received just about every award under the sun for his accomplishments. One accomplishment, which never got him an award but should have, was being instrumental in killing off, rather than developing, a new airplane. Allow me to explain.

Right after the war, with the Atom being the greatest thing since sliced bread, practically everybody in all walks of military life wanted to use nuclear energy to develop one thing or another. And quite a few things were developed;

like nuclear submarines, aircraft carriers, spaceships, what have you. Naturally, the Air Force began dreaming about a nuclear-powered bomber that could go around the world humptyump times before bringing it back to base. The advantages seemed obvious, especially in those days before the fear of radiation began sweeping the world.

Needless to say, RAND was asked to evaluate the nuclear powered bomber. For a while I was assigned to this effort, never learning a thing about how the airplane would fly but a fair amount about how the nuclear reactors would work and what the radiation safety problems might be. At the same time, some of the aircraft companies were getting interested and when I arrived at Lockheed the management was beginning to smell blood, and big profits, and had embarked on a massive study of such an airplane. As chief designer, Kelly sat atop the study.

Back in Washington there was considerable support from various quarters. The Air Force set up an office under a major general and bankrolled him to the tune of billions of dollars. Not only was there support from other factions in the Pentagon, but the AEC, which would be in charge of developing the nuclear reactors to power the engines, saw new business. There was also some opposition from those who worried about the cost of such a huge plane and about the possibility of a crash someplace on U.S. terra firma that would result in radioactivity being spewed over the landscape. Outside Washington at SAC headquarters, General LeMay, for his own set of reasons, which turned out to be pretty good ones, wanted no part of it. He was doing everything he could to scuttle the project, primarily by setting up performance requirements that could be very difficult to meet.

One day a conference on the bomber began at Lockheed's corporate headquarters in Burbank. In attendance was Lockheed's top management and technical experts, an assortment of Air Force brass, and technical experts from the Pentagon, laboratories and universities. I was invited to attend, as a member of the corporate planning staff. There was no one from SAC to provide the fly in the ointment.

It was a love feast, from the beginning to, almost, the end. It had pretty well been decided that should the bomber be built Lockheed would build it. Its reputation as a maker of first class aircraft was sky high and it had come into possession of a huge new production facility in Georgia ideally suited to turn out such huge aircraft as the nuclear bomber was envisaged to be. The Lockheed management was practically drooling at the prospect of these bombers rolling off the assembly line and making God only knows how much money in the process.

On the first day, as the conference progressed, with the Lockheed experts making their sales pitch, the visitors nodding in agreement, and the management beaming, giving every indication that smooth sailing, or flying, lay ahead, Kelly sat there mute. On the second and last day, it was more of the same until with an hour or so to go, one of the visitors noted how quiet Kelly had been and wondered if he had any comments before the meeting broke up. He did.

Kelly now gets to his feet, walks up to the front of the room and up to a blackboard and proceeds to give the most scathing account imaginable of the bomber's unfeasibility. It was not kind of speech Trev delivered in front of Schriever's group and there were no expletives to be deleted. Instead, with cold

technical logic and proper English, Kelly proceeds to pick the bomber apart piece by piece, with all the facts at hand. In his own way, he was as devastating as Trev could ever be. When he was through, his message had gotten across, loud and clear. The bomber should not be built. Just as no one at Schriever's meeting dared argue with Trev, no one at the Lockheed meeting saw fit to argue with Kelly. On this particular subject he was the smartest guy in the room and everyone knew it. His bosses sat there stunned and miserable, knowing in their hearts this was the beginning of the end of the bomber. It was and came to a well deserved ending not too long afterward. (As for Lockheed's sprawling Georgia facility, all's well that ends well and it wound up turning out huge transport aircraft, and huge profits, by the scads.)

In my book, Kelly, as one of the great pioneers in aviation history, ranks right up there with Orville and Wilbur Wright. My guess is that had he been around at the time he would have turned out a better airplane than these illustrious brothers. In terms of his dedication to his country and what he accomplished to fulfill this dedication, I would rank him with Trev Gardner, as someone of tremendous political courage who would fight like a tiger for his beliefs. Which he did and survived to become a national hero, while poor Trev drank himself into oblivion and died unappreciated by his country, despised by most who knew him but never understood him, and loved by those precious few who did understand him. As I mentioned, I came to love Trev only after he died, when Vince Ford, unequaled at keeping confidences with his close friends, even to the tune of keeping them from other close friends, over more martinis than I've ever had with one person, told me the story of Trev's life during the period he knew him.

Make no mistake, Trev was not a lovable guy. However, for what he did for his country, he deserves to be loved by all of us, even those he brutalized. With all due respect to Kelly, Trev, in the few short years he rampaged around Washington, made more real history than did Kelly over some fifty or so years. But that's my opinion, which scarcely anyone would share today. There might be a few more, were all those who knew him well and knew what he was trying to do still around; one of them, incidentally, being Johnnie von Neumann.

When I had decided to leave Lockheed and return to RAND, shortly after which I invented the neutron bomb, I got a call from Kelly. Would I please come to his office. He had heard of my impending departure and didn't want me to go. "Sam", he told me, "I'd like you to stay here and work for me as a special assistant doing whatever you want to do. You may not feel you've been an asset to the company and even though I don't agree, that's your decision. But I think you can be a big asset to me. I don't know exactly how but I know you can."

You've got to believe me, I was really torn and felt guilty as sin. But I left. If you want my guess, had I stayed on with Kelly I still would have invented the neutron bomb, at just about the same time I invented it; and I would have gotten far more support from him and from Lockheed than I ever did from RAND, which mainly fought the idea and barely tolerated my promoting the concept, and finally forced me out for persisting with my ideas on using discriminate tactical nuclear weapons.

I would hope, from these two tales of how two strategic nuclear weapons systems came to be and not to be, that you're getting some understanding of the

process. That these weapons don't exactly come about through some orderly intellectually replete process, where all facets of the problem are understood to a degree where they can be combined and analyzed to allow decisions to be made. We should live so long. However, in wrapping up this discussion of these weapons, I'd like to single out for extended discussion one facet I've only briefly touched on so far. That has to do with the nuclear threat against us, in particular the threat from what was the Soviet Union.

You'll recall my mentioning the utter mendacity of the Air Force Intelligence people I visited some forty or more years ago, having to do with the Soviet H-bomb program. With absolutely no hard evidence to speak of, they not only figured out what kind of H-bomb the Soviets were developing but how many they would make and at what rate. Well that's not the only fraud our intelligence friends have perpetrated on us over the years. There's been a stack of them, the most fraudulent, in my opinion, being estimates put out on Soviet nuclear ballistic missiles. We had stacks of data at hand but data aren't necessarily fact, or reality, or, most importantly, the *truth*.

In one his writings on war and peace, Winston Churchill once noted: "However absorbed a commander may be in the elaboration of his own thoughts, it is necessary sometimes to take the enemy into consideration." I won't say U.S. Intelligence has not seriously tried over the years to find out about the Soviet strategic threat, whose most threatening component has been judged to be their (allegedly) enormous stockpile of enormous multi-warhead ICBMs. It has tried, very seriously and very diligently, using the most sophisticated hi-tech surveillance equipment imaginable. (One guy who was terribly concerned about the Soviet ICBM threat and determined to achieve technical means to assess it was Trev Gardner, who deserves tremendous credit for getting our surveillance program started.) On the other hand, for a number of reasons, understandable but indefensible, in our efforts to learn the truth about their capabilities, we never seriously considered another truth.

The commies were great liars and deceivers, thoroughly capable of denying us knowledge of their capabilities. They made no bones about this, stating time after time they intended to swindle us. In the area of nuclear missiles, for all we know, or don't know, they may have taken us to the cleaners by showing us things they wanted us to see and hiding things they didn't want us to see. As Lenin once said, in explaining how the commies were going to do in the capitalists, "Tell them what they want to hear." I more than suspect, in dealing with us on matters of nuclear war, that's exactly what they've been doing with their ICBM program. What I don't suspect, because I know, is that we've been lapping it up despite scads of official Soviet statements they were bent on swindling us. We've been lapping it up not necessarily because we believed everything we saw and heard with our fancy hi-tech equipment (satellites, radars, what have you). It's because we had no choice, for two reasons: If the Pentagon wants to build up its own strategic forces it has to show Congress (who has to pay for it, out of our pockets) it knows how they're going to be used against a *known* enemy; and if an Administration wants to score political brownie points by getting a nuclear arms control agreement, it has to show Congress we know enough about the enemy to sign a treaty that Congress will ratify.

Before going any further in this discussion, I want to point out to you that everything I say about the limitations of our intelligence has been out in the

open for many years — in U.S. writings and in Soviet writings. None of my contentions are breaches of security, they've been based on scientific knowledge, most of it simple enough for a fifth grader to understand, available to anyone interested. So don't go getting any ideas I'm bringing you into the inner sanctums of the CIA. Regarding these inner sanctums, an old friend of mine, Johnnie Foster (who, while working at the Livermore nuclear weapons lab, introduced me to the warhead technology which made it possible for the neutron bomb to go from theoretical fancy to hard fact), while sitting on President Reagan's Foreign Intelligence Advisory Board, which gave him full access to these inner sanctums, brought out this basic intelligence flaw in an article, from which I quote.

"There is an assertion that the CIA shall be in a position to know the truth and be able to communicate it to us. From a military point of view, such would be considered an ultimate requirement.... But that is not always the case. A lot of information is misinformation. This is particularly so when we are trying to get information from a closed society that realizes information that we think is of interest to our security is absolutely vital to theirs, and every effort is made to deny us access to it." Nothing could be closer to the truth than these words of Johnnie, who, knowing him as well as I did, meant every word he wrote. Which was pretty gutsy for someone who could have had his throat cut and his job lost in an instant, for such iconoclasm.

Around the time Johnnie wrote his article, I had decided, as I did on practically all national security matters I knew something about, to start speaking up on this intelligence fraud. (Previously, I had had special intelligence clearances, called "code word" clearances, covering the issue being discussed here. They were taken away from me, in fact, at that time the government was getting so fed up with me over my behavior they tried to take all of my clearances away. This would have been the end of my career and livelihood. I was too old to go back to grave digging and didn't care to be a school crossing guard.) I had become soured and terribly disturbed on the whole business. We were getting an enormous amount of data from all this fancy equipment we never understood, but was being used anyway to shape our policies. Speaking of the "code words", let me digress with a little story.

Before getting these intelligence clearances, I had to go off to special briefings, where it was explained that the sensitivity of the code word information was so great the code words themselves were not to be revealed to anyone not holding these clearances. So if Joe Schmo, who held a regular Top Secret clearance, were to ask me what the code words were, I couldn't tell him. I got the message and behaved myself impeccably.

Time goes by after the briefing. One day I'm reading Jack Anderson's column in the newspaper and there, staring me in the face, were most of these code words. I was horrified and drove over to see the briefing officer and showed him the column. He was horrified and said he would check into it. He was sure new code words would have to be invented, the old ones having been compromised. In the meantime I was to go on observing the rules on the old ones. As you might guess, nothing happened. They went on using the old ones under the same set of rules. Maybe they figured if they got new ones, Anderson would soon find out what they were and put them out in another column. More likely is that they didn't want to go to the trouble of changing them. Or hauling

Anderson before an appropriately cleared judge to force him to reveal his source or prosecute him — an excruciating prospect if there ever was one.

Sometime later, when I was visiting in Washington. I got a call from Dale Van Atta, an assistant to Anderson. He was working up a piece on a clandestine atmospheric nuclear test that wasn't supposed to have taken place, but had taken place over the Indian Ocean off the coast of South Africa. It had been accidentally observed by a monitoring satellite, which is very good at seeing such things and real hard to fool. (I'll be discussing that test in the next chapter.) Knowing of my background, he was wondering whether I thought it might have been a neutron bomb test. So we got together for lunch and after discussing the test I asked him point blank about the Anderson code word column. It turned out he had written it. "How did you ever get access to this kind of stuff?", I asked him. "Real easy", he replied, and explained he had his sources, which he wasn't about to reveal to me. My my, how these secrets do get out: "Real easy."

In June 1982, I wrote, with my friend and colleague Larry Beilenson, an article on arms control that came out in the Wall Street Journal. It focused on the verification problem, stressing the need for the most stringent on-site inspection of any and all suspected nuclear facilities in the Soviet Union. In particular, and this was the part I wrote, we launched into the inadequacies of our surveillance satellites in appraising the Soviet ICBM threat and being able to monitor any treaty we might sign. We used some pretty tough language that, in effect, made out the CIA to be a bunch of duplicitous boobs. Here, in condensed form, is what we said:

"The real problem is that so far we have negotiated arms control treaties according to our ability to count missile launchers and measure seismic signals [having to do with the strength of Soviet underground nuclear tests] rather than on our basic need to know the other side's true military capabilities. For realistic nuclear arms control, however, we must know the actual nuclear strength of the Soviets and this is impossible to discover through national technical means of verification [meaning using satellites and fancy seismic equipment like we use to detect and measure earthquakes].

"How many Soviet ICBMs are actually in silos? We don't know, and there is no way of finding out by orbiting satellites over these silos. The Soviets are not compelled to use silos to launch their missiles; they can launch them from any concealed place they wish.... The number of missiles they may have produced and concealed far away from the silos may be far in excess of the number of silos. It would be greatly to the advantage of the Soviets to use empty silos as decoys and thereby make their missiles essentially invulnerable to U.S. attack.

"How many missiles are the Soviets actually producing and deploying? We cannot know ... there is no way a camera on a satellite can see through a factory roof or underground. What are the true performance capabilities of Soviet nuclear weapons? Again, we don't know...."

Now you've got to admit that's pretty tough talk, to tell the U.S. Intelligence community they don't know ver much about what they've deemed to be the number one threat to U.S. security. You would expect that an outraged community would have fought back, bitterly condemning us for such outrageous statements. This wasn't quite the case. They didn't say a thing, at least openly in response to the charges Larry and I had made. nor did anyone

else who had access to all the secrets of satellite surveillance. The silence was deafening. It was pretty discouraging. But the story doesn't end here.

Larry happened to have a very old and close friend in the government at that time, a guy by the name of Ronald Reagan, who happened to be President of the United States; and, we would assume, had full clearances to find out all about satellites and all the rest of the technical intelligence business. If he wanted to check on some intelligence matter, like the one Larry and I raised, all he had to do was pick up the phone and in minutes he would have some of the best experts in the country in his office to answer his questions — hopefully, but not necessarily, honestly. In this vein, Larry figured, why don't I send a copy of our article off to Ron. Which he did, with full assurance that Reagan would read it. Before Reagan entered the White House he had worked out an agreement with Larry that any material Larry wanted to send to him would get to him by sending it to a mutual friend who sat outside the Oval Office, a gal by the name of Helene von Damm who long had been his personal secretary.

After a while, a very short while, Larry gets a handwritten letter from Ron, highly praising our article. Not only did the President agree with everything we wrote: but, he told Larry, he was putting the article in a drawer in his Oval Office desk. When the time came he could put it to good use, he would. (I never actually saw the letter from Reagan; Larry, who treasured the privacy of his friendship with the President, would not show it to me. However, he did read it to me and my ego being what it is, I was so impressed with myself that I practically memorized it. That is, at the time; all I remember now is the gist of it.) Also, I received a call from Bill Graham, chairman of Reagan's Arms Control Advisory Committee, telling me I had done a great service in getting out the facts.

One thing is to get some flattery from a sitting President and a key advisor for something you've written. That's just fine. However, what's far better is to have them tell you you're right and, in effect, the intelligence boys have been wrong and even misleading. Rarely have I felt so goddamned pleased with myself, to a degree that I really believed, for a change, I'd done my country some good. (Ha!).

Just in case you're wondering who this guy Beilenson was, I'll tell you. But first a joke I've always loved to tell.

One day, during the last century, a rabbi from someplace in New England decided he should see what the South was like. So he got on a train and a day or two later got off at a small town in Arkansas. He began strolling down the main street and before he knew it he had a procession of townspeople following him, gaping at his rabbinical attire, his side locks, whatever. As he strolled along, the procession grew longer and longer, until, finally, in exasperation, he turned on them and yelled out: "What's wrong with you people. Haven't you ever seen a Yankee before?"

Larry's father, who, during the last century came to Helena, Arkansas (I'd never heard of it) where Larry was born and raised, may have been the second Jew the townspeople ever had seen. Larry was a very bright youngster and did well in his schoolwork, well enough to get into Harvard, where he met and befriended David Lilienthal, and ultimately graduated from its law school with full honors, and then some. With that, this young man decided to go West. Right around the time my family left Brooklyn and moved to Los Angeles, so

did he, setting himself up in law practice. As I remember him telling me, quite a few of his clients were from Hollywood and to make a long story short, Larry was perhaps the key player who arranged for the creation of the Screen Actors Guild. He became its first legal counsel. He also became a very close friend of one of its early presidents, Ronald Reagan, and his personal attorney as well.

Larry's vocation may have been law but his avocation, ever since he learned to read, was history, in particular military history. This led to a fascination with foreign policy and military strategy and Larry became as fine a scholar in these areas as any Harvard professor. Even better, in my opinion. When Reagan began thinking of getting into national politics, his primary advisor, his *eminence grise* on national security matters, up to the time he became President, was Larry. Needless to say, once Reagan came into the White House he became a captive of the System and the best Larry could do was to write an occasional letter or send some material to him.

One last note about Larry's effect on Reagan's thinking on defense matters. Any number of people have fancied themselves to be primarily responsible for selling Reagan on the Strategic Defense Initiative ("Star Wars") concept. The fact of the matter is that it was Larry who, years before Reagan became President, sold him on the need for defense against nuclear attack. Not being a technologist, Larry was in no position to recommend specific approaches; but I think it's safe to say that when Reagan gave his famous Star Wars speech to the nation some ten years ago, its philosophical underpinnings already had been established, thanks to Larry's effect on him.

A few months after Larry and I wrote our Wall Street Journal article, along with another colleague of mine, having far greater technical knowledge than Larry, or me for that matter, I wrote, for a professional journal, an article dealing with the same basic material but going into far greater technical and military detail. The thesis of the article was that due to our appalling lack of reliable target information, there was no way the U.S. could fight a purely military nuclear war, which was what our official policy, on which we based our strategic weapon requirements, would have us do. To my surprise, I got a couple of phone calls from former colleagues who had worked for the government and had full intelligence clearances, praising me for telling it like it was. Soon after that I got together with Bennie Schriever who like Johnnie Foster also was a member of Reagan's Foreign Intelligence Advisory Board.

I showed Bennie the article. He read it and exploded, telling me that, like Reagan, he not only agreed fully with its thesis but was piqued beyond compare over the government's refusal to accept these disturbing realities. He told me he had discussed the matter with Johnnie and one other member of the Board. Bud Wheelon, who formerly had been the technical director of the CIA. They were thinking of bringing it up with the Board, to convince them to see the President and tell him the facts of life. I never inquired of Bennie whether they had succeeded or not. It was none of my business. He wouldn't have told me anyway. However, I'm inclined to believe nothing ever happened. Why? Real simple: Politics. To convince a President on the need to change our entrenched ways of developing new strategic nuclear weapons and of getting nuclear arms control treaties, is politically impossible.

As for our strategic weapon developments, they've been disastrous enough over the last 20 or so years in not being able to meet the performance

requirements set up for them, let alone being able to fight a nuclear war. The MX ICBM was supposed to be mobile enough to avoid surprise nuclear attack by the Soviets. The Air Force never was able to get an acceptable scheme for doing this. It wound up putting fifty missiles in silos, making them the most lucrative targets on the Soviet list: One Russian warhead gets you ten American warheads, a pretty good deal. The B-2 (“Stealth”) bomber was supposed to be invisible to Russian radar but it turned out to be not quite the case, plus the thing costing close to a billion dollars a copy; so Congress cut off production at 15 bombers. And all this has come at enormous cost to the U.S. taxpayer — a hundred or more billion dollars.

For someone like myself to come along and say these weapons never should have been developed in the first place because they didn’t have the required military target system that conformed to national policy has to be a total waste of time. Which it’s been. Even were everything I’ve said here to be accepted, there wouldn’t have been a chance of changing the System, for all the obvious reasons: The Defense Department would never stand for it — there goes their budget; Congress would never stand for it — there goes thousands and thousands of defense jobs in their districts; and the American people wouldn’t stand for it — it would be unbearably upsetting. So what do you do in the face of these sad facts? Real simple: You just go on doing what you’ve been doing. It’s sort of an obverse of a Murphy’s Law: Instead of “If you don’t know what you’re doing, don’t”, it’s “If you don’t know what you’re doing, do it anyway.” It’s far easier and you’ll sleep better.

As for nuclear arms control agreements, the same observations apply. But before getting specific here, I’d like to tell a tale about how we conducted our first strategic nuclear arms control negotiations with the Soviets, a process in which I participated. These were the negotiations that led to the SALT I agreement, signed in 1972, which sought to limit the strategic nuclear arms race, not by limiting the nuclear arms of both sides but by limiting the number of ICBM silos each side could have. Underlying this agreement was the unfounded supposition that, like us, the Soviets would place their ICBMs in these hardened silos, thereby making them invulnerable to nuclear attack by the U.S. At least, that’s what the American people were told.

What really formed the basis of this agreement was our realization that the only thing we could see for sure with our satellites was the construction of these huge holes in the ground. Needless to say, the U.S. Senate, for all the understandable political reasons, one of them being that the U.S. public was overwhelmingly in favor of the pact, voted overwhelmingly in favor of it. Also, needless to say, it didn’t slow down the arms race one bit and the nuclear threat against us increased dramatically.

When the SALT I talks began, I was working in the Pentagon in a policy shop, holding down the fort on nuclear matters for a colleague of mine who was over in Europe with the U.S. delegation. In this capacity, I was able to observe on a day-by-day basis what was going on in the talks and what the folks back home (in the Pentagon, the State Department the CIA, and so on) were up to.

After the initial amenities and cocktail parties intended to encourage good fellowship in the talks were over, a logjam came up. As our logic had it, if we were to consummate a responsible agreement, each side had to know what the other side’s capabilities were. This meant our telling them what we had and

they telling us what they had. All of a sudden, the negotiations came to a standstill, for neither side had foreseen this might become a problem.

I don't know what was going on in Moscow over this apparent roadblock, but in Washington there was consternation galore. Obviously the President, Richard Nixon, and his principle advisor, Henry Kissinger, wanted an agreement so badly they could taste it. On our side there was some reluctance to hand over our missile data to the commies, even though they had long had been leaked out to the media. However, under pressure from the White House, we agreed to tell them what we had. Now it was their turn to tell us what they had.

With half the battle won, the talks reconvened. We told them what we had and waited for them to tell us what they had. There was only one problem: Nobody on the Soviet delegation had this information. Moscow, who was watching these guys very carefully through the KGB who had their man in on the talks, wasn't about to give it to them. The logjam resumed. Sounds incredulous? Sure does. Let's continue with the story.

Back in Washington, there was consternation galore. If the commies couldn't tell us what they had, there was no way of going on with the talks. We might as well bring our boys home and forget about it for the time being. However, if the will is strong enough, there's always a way; and the head of our delegation suggested a way out of this mess. It was for us to tell the Soviet delegates what their country had. If they were willing to take us at our word and this was okay with Moscow, then we could get back to business.

The Washington bureaucracy was in an uproar over this proposal. After all, *real secrets*, *intelligence secrets*, were at stake, even though these secrets had been leaked to the media. However, the bureaucracy caved in to political pressure and a compromise was struck: We'll tell the commies how many missiles they have, gleaned from our super secret intelligence capabilities, but not precisely. We would tell them to an accuracy of something like plus or minus ten percent. That seemed to mollify the opposition.

Okay, so its back to the talks. We tell them what they have; they allow this to be very informative. The talks proceed and not once did they ever use this information in reaching agreement. Sound ludicrous? Sure does. But that's the way we do business in nuclear arms control. If you don't know whether to laugh or cry, you might try doing both.

How on earth did such an incredible situation come to be? I don't pretend to know all the answers, nor does anyone else. However, at the root of all this is the speech, from which I quoted earlier, by David Lilienthal; that in our dealing with nuclear policies and nuclear disarmament, we have done so on the basis of a mythology of our own creation: If we're going to save ourselves in the Nuclear Age, the nuclear weapons have got to go. The problem is solved by doing away with it, not trying to understand it.

We began flirting with nuclear arms control during the last part of the Eisenhower administration. I don't know what would have happened had Nixon won out over Kennedy. Here was a guy who had made his reputation largely because of his anticommunism I'm inclined to believe, because of his dislike for the commies, we would have sat on the matter. At least for a while, until domestic political pressures forced him to do something. For Kennedy, however, by the time he walked into the White House he had made up his mind. He could and would do something about the nuclear arms race. His conviction was based mainly on the advice his key advisors had been giving

him about the capabilities of our technical surveillance systems, especially the satellites. In this connection, allow me to tell you a story told to me by an Air Force general who I knew well and was not the kind to pass on Washington gossip.

After Kennedy had been elected, but before becoming President, he dispatched two key national security advisors, both of whom were to become key White House aides, to Moscow to have some “getting to know you” talks with the Soviets. Primarily on their minds was nuclear arms control. In the back of their minds they had hopes of convincing the Soviets to put their ICBMs in silos, as we were then doing. Were they to do this, then we could check on it with our satellites. We could be off to the arms control races. So off to Moscow they went and in the course of the talks they passed on information, that really didn’t merit being classified but was, on how to build nuclear hardened silos. Sure enough, some time afterward our satellites began observing silos being constructed and later on, on occasion, what we assumed to be missiles being lowered into them. Except that they may not have been missiles, for what were being lowered were canisters assumed to contain missiles. As for the missiles, we never did see them, and our fancy hi-tech surveillance systems were never able to get a good idea of what they looked like when they tested them. Were we deluding ourselves during that visit or actually convincing the Soviets to go along with us so we could get nuclear weapons under control? I’m convinced it’s the former, for reasons I’ve brought out. If you prefer to believe what your government has been telling you over the last thirty or so years about what we know about Soviet nuclear missiles, maybe you should. After all, if you can’t trust your own government on such a life and death matter, who can you trust? Of course, you can trust God, but so far he’s given us no divine revelations of what the godless commies have been up to.

Before summing up this intelligence business, let’s get back to Larry Beilenson, Ronald Reagan, the arms control article Larry sent to Reagan; and how seriously Reagan really took it when the political chips were down.

All too painfully, you might remember the Iran-Contra scandal and Reagan lying in his teeth to the American people, when the story first broke, in an attempt to minimize the political damage. His really was in a bind and not too long after that, to restore his image, you might recall that he signed a treaty with Gorbachev on the so-called Intermediate Range Nuclear Forces, known as the INF Treaty. In this pact, both sides agreed to destroy their stockpiles of nuclear missiles that endangered both Europe and the western Soviet Union. Indicating that perhaps he really had taken our article seriously and taken it out of his desk drawer as a primer for drawing up a responsible treaty, the President explained to the American people this was going to be a fully verifiable treaty. Now I don’t want to make Reagan out to be a liar twice in the same paragraph, but the fact of the matter is that on this occasion he sure didn’t tell the truth — far from it.

The principle weapon at issue on the Soviet side, in the INF Treaty was a triple warhead mobile nuclear ballistic missile we dubbed the SS-20. If Reagan, who had been coached for years and years by Larry on Soviet duplicity and deception practices, had ever bothered to seriously read up on Soviet deceptive practices and doctrine, he might have come across a speech given in 1960 by President Nikita Khrushchev, where he addressed himself to deploying such

missiles as the SS-20. Referring to the need to make his missiles invulnerable to attack, he stated: “We locate our missiles in such a way as to ensure a double and even a triple margin of safety. We have a vast territory and we are able to disperse our missiles and camouflage them as well. We are developing such a system that if some means of retaliation were knocked out, we could strike the enemy from reserve installations.” (I wonder if, when Kennedy’s emissaries went to Moscow to persuade the Soviets to put their missiles where we could see them, they were aware of Khrushchev’s speech — they should have been — and everything else the Soviets had been saying and doing about hiding, where possible, their nuclear forces. Were they aware that the KGB had set up a counterintelligence outfit known as The Chief Directorate of Strategic Deception whose job included devising ways and means of deceiving the gullible capitalists into believing what their satellites saw? I doubt it, it might have messed up their plans.) As the saying goes “What you don’t know can’t hurt you.” Whatever that means. Sometimes what you don’t know, like if it involves megaton warheads, can kill you; but since we don’t know, who knows?

As for the SS-20, for all we know, or don’t know, it may never have existed. We never actually saw one, with our surveillance equipment or being paraded through Red Square. We had no good idea what purpose the Soviets had in mind for the missile. In fact we had so little reliable data on its performance that it might very well have been an intercontinental missile to be used primarily against us, not our NATO allies. If it really was what we claimed it was, we had no way of verifying this; all they let us see was a bunch of sheds and some support equipment indicating that the sheds contained missiles. Whether they did or not, we couldn’t find out since satellite cameras can’t see through roofs. And finally, since the purpose of a mobile missile is to keep the enemy from finding out where it is, why in heaven’s name would they keep their missiles in sheds they knew full well we could see and, if war came, blow them to smithereens. This question was raised by an acquaintance of mine, Jim Hackett, who had directed our Arms Control and Disarmament Agency. The government never responded.

Despite all these nagging questions, Reagan pushed through the INF Treaty, bragging what a great deal we had struck. Not only had we eliminated all the SS-20s, but in the process the Soviets had given up several times the number of warheads threatening NATO than NATO had given up that threatened them. A fantastic deal, if you believed him. I didn’t. You shouldn’t. But almost all the Senate did, and they’re the ones who ratify treaties, not you or me.

I was terribly bothered at the time since it struck me as a pretty poor way to conduct nuclear arms control negotiations and portended poorly for future agreements, unless the commies already had decided to give up the nuclear ghost and accept any deal they could get. Maybe they had, but we had no way of knowing at the time. But that’s all recent ancient history, as Johnnie von Neumann would say, and today we are witnessing, or hope we are witnessing, the unilateral demolition of much of their nuclear stockpile, although there’s still no way for our intelligence to verify it, since we haven’t really known what they had to begin with. (In this respect, what particularly bothered me, when we signed the INF agreement is that we did so based not on what our intelligence claimed they had, but rather on what *they* claimed they had, which was far more than what we claimed. The reverse of what happened in SALT I.)

Even more bothered by the INF Treaty than myself was Larry Beilenson. When Reagan tried to lie his way out of the Iran-Contra mess, Larry had loyally defended him, saying it was an act of compassion for the poor American hostages holed up in Beirut. This, in my opinion, was a lot of bunk, which I told Larry. The probable truth was that there were congressional elections coming up and were Reagan to have gotten the hostages back, who could have cared about giving the Ayatollah a few weapons, in direct contradiction to his stated foreign policy. He could have paraded the released hostages and their families before the American people; and an overjoyed electorate, in gratitude to this Republican president, might have voted enough Republican senators into office to give him a Republican controlled Senate.

I've known too many politicians to fall for this nonsense that even when the chips are down they're willing to place compassion, let alone national security, over politics. In fact, over the years I knew Larry he had defended Reagan on practically everything, even when he disagreed with him; explaining to me that political necessities were political necessities. That's the way the game was played. He was right. However, when the INF Treaty was announced, his understanding and tolerance, even for one of his oldest and best friends, came to an end.

I remember coming to his house at that time for a couple of drinks and dinner. He poured me a martini. There was a long strained silence. Then he looked at me and asked: "Is this man an idiot?" I didn't have to ask him who "this man" was. So I answered "Larry, Reagan's not an idiot. You and I are. You've known him long enough to know he's first, last and foremost a politician and he's been in political trouble. Would you rather have him get us into a war someplace [Larry was bitterly opposed to U.S. foreign military intervention — so was I.] to get himself off the hook, or sign a stupid treaty over some missiles in Europe you wish we'd never deployed in the first place [Larry was in favor of withdrawing all U.S. military forces from NATO — so was I.]"

Larry was so incensed he was in no mood to buy my explanation. He probably wasn't even listening. He continued fulminating against his dear friend in the White House. It wasn't a pleasant evening.

Mad as Larry was, he couldn't get himself to possibly alienate his dear friend by writing to him and berating him. He had done so on many an occasion before, but not under circumstances where his dear friend was in trouble. Mad as I was, and I really was, I felt compelled to speak out against the treaty and asked Larry to join up with me in writing a newspaper article on the matter. He refused to go along. So I went off on my own, getting out a front page article in the editorial section of the Washington Times, which all good conservative, and even a few liberal, senators religiously read. I was hoping that some right wing senator might try to get me up to the Hill to testify against the treaty. That didn't happen. In fact, nothing happened. I heard from no one, not even former buddies of mine who I knew were against the treaty. But that's par for the course these days: Why waste your time by calling and complimenting an old friend who's been wasting his time.

Larry's refusal to join up with me in writing this article really had me bothered. This never had happened before, we had co-authored a number of articles earlier, one of which drew national attention. From that time on, our friendship went down hill, largely because of me. I still thought that principle

(as I saw it) and dedication to my country (as I saw it) outranked keeping personal friendships going; one reason why I've lost so many of my friends of long-standing. Larry didn't quite see it that way, and I want to point out that he was a very highly principled guy. Were he still alive today and read what I've just written about him and Reagan, he would feel betrayed, I had betrayed a confidence he shared with Reagan and chose to share some of it with me. He would be right. I should be ashamed of myself for violating this confidence. I am. But guilty I'm not. (My principles aren't the same as his, or most others for that matter.)

I refuse to believe I've acted wrongly enough to call for guilt. How do you hurt some ashes lying in a crypt someplace?

If in any way what I've just said about Reagan hurts his feelings, well it couldn't happen to a sweeter guy. I may not have changed my ways, but I honestly believe I still have a conscience. Part, a huge part, of that conscience obliges me to go on trying to help my country in an age that still remains pretty dangerous, as I see it. One consolation though is that I can't hurt myself much more than I already have.

4. Through The Neutron Looking Glass

First let's set the record straight on what the neutron bomb is all about: How does it work? What does it do? What doesn't it do? What kind of war was it intended for? What kind of war wasn't it intended for? Is it a moral weapon? These seem like reasonable questions one should have answered in trying to assess the weapon. One would expect that reasonable people, in trying to resolve the issue in their own minds, would act reasonably. For most people this has not been too often the case. For people who have held responsible positions in our country — politicians in Washington (Presidents, senators, congressmen, congresswomen); White House officials; State Department officials; Defense Department officials (in and out of uniform); Atomic Energy Commission officials; scientists of high competence and prestige; and, with respect to the moral question, men of God — even less often has this been the case.

When I had invented the neutron bomb and through sheer happenstance found myself dealing in a world of all the above, I began to wonder whether I was a reincarnation of Alice, experiencing what even Louis Carroll couldn't comprehend. This is not to say there weren't a few, precious few, who had the ability to sift through the facts of the matter and reach reasonable and responsible determinations. There were. By no means, however, did they share the same opinion on whether the bomb should be built and, if necessary, used. In a world so poorly understood that profound decisions on one side or another of such an impassioned and complex issue as the use of tactical nuclear weapons rarely can be convincingly defended, this is understandable. As you might guess, I've been one who from the very beginning thought the bomb should be built and used. I still feel that way. But today it's a belief that for the time being has no realistic basis. Thanks to President Bush, we don't have any of these weapons to use. The Army now exists on a totally non-nuclear doctrine.

Before stepping through the looking glass, allow me to take up some of your time and deal briefly with these questions posed above. Perhaps you already know the answers, which I'm inclined to doubt, and I don't mean to be insulting. If so, don't bother and turn to my adventures in neutron wonderland and wander through with me.

In a broad sense, the neutron bomb is an explosive version of the sun; that is, the relevant energy it emits comes from thermonuclear, or fusion, reactions involving the very lightest elements. To be specific, its fuel consists of the two heavier nuclei of hydrogen, named deuterium and tritium. By means of a fission trigger, a mixture of these two nuclei is compressed and heated, as happens in a hydrogen bomb, to cause nuclear reactions whose principle output is in the form of very high energy neutrons. Also produced will be blast and heat, but so predominant are the neutron effects against human beings, who are a hundred to a thousand times more vulnerable to radiation than blast and heat, that by bursting the weapon high enough off the ground the only significant effects at the surface will come from radiation. In so doing, the blast and heat effects will not be strong enough to cause significant damage to most structures. Hence, a bomb which, accurately but misleadingly, has been described as a weapon that kills people but spares buildings. (Those who like and comprehend the Bomb

understand that the people are bad guys — enemy soldiers. Those who dislike it and never have bothered to delve into its military aspects, claim the people are innocent civilians who happen to be in the combat area, even though most of the time they're not, for obvious reasons.) In the real world, it is weapon that fulfills the dream of civilized nations; namely, a weapon that restricts the battle to the battlefield.

What does it do? Well, in about a thousandth of a second it will seriously irradiate enemy soldiers (in tanks, self-propelled artillery vehicles, armored personnel carriers, in field bunkers, and most other places where they may be) out to a distance of about half to three-quarters of a mile for a warhead yield of a kiloton, a tenth that of the bomb that destroyed Hiroshima. Soldiers in this area, to one degree or another, within minutes to hours, will be rendered unfit to fight. Roughly half will die, most rather quickly from shock to the central nervous system. Those who are "wounded" (I put this in quotes because neutron bomb wounds in no way can be compared with wounds from conventional weapons — rifles, machine guns, artillery, fragmentation weapons, napalm, etc.), if given proper medical attention, as is done on the conventional battlefield, after some weeks they will recover.

What doesn't it do? Well, for start-offs, when the war is over the civilian areas — villages, towns, cities — will be in just about the shape they were in before it started. There will be no lingering radioactivity to prevent occupation of these areas; in fact, they can be reentered almost immediately. (Compare this with every major war we've fought in this century, with what I saw in Seoul that affected me so deeply.)

As for the enemy soldiers, the bad guys, who during a war we make out to be as barbaric as the troops of Attila the Hun (they usually are), those that die are dead; but that's always been the main objective in battlefield conflict — to kill. As to how they die, which hasn't been of real concern in conventional war, all I can say is I doubt whether the agony an irradiated soldier goes through in the process of dying is any worse than that produced by having your body charred to a crisp by napalm, your guts being ripped apart by shrapnel, your lungs blown in by concussion weapons, and all those other sweet things that happen when conventional weapons (which are preferred and anointed by our official policy) are used. But that's my subjective opinion, based in no small way on my agony at the hands of my bowel-conscious mother, so loved by all her friends, in contrast with her son so reviled by so much of the world.

As for the wounded, to a first approximation, when they have recovered, they are back in just about the same shape they were in before the irradiation. They have all their limbs, their eyesight, an intact digestive system which, with or without Metamucil, will allow them to move their bowels to their hearts content, or their mother's heart content if their mothers are like mine (may God help them), and so on. In a very small percentage of the cases, many years later cancer (mainly leukemia) may arise; but unless most of them don't smoke or frequent restaurants where smoking is allowed, most of them stand a better chance of dying from smoke (or other chemical) induced cancer, or cancer produced by natural causes.

What kind of a war was it intended for? It was intended solely for use in these so-called limited wars (Korea, Vietnam, the Persian Gulf), where the enemy had no nuclear weapons to get back at us in any effective way. It was invented at a time when, because of the Korean war and all the frustrations it

brought about, these kinds of wars were in the vogue in the Pentagon. As for using the neutron bomb to defend NATO, this made zero sense to me at the time and always has. Not only because of the refusal of our military to seriously consider using nuclear weapons in this theater, but because we had no sensible plans for defending Europe. All we were interested in doing in the event NATO was attacked and we used nuclear weapons, was to decimate everything in sight: our allies, Eastern Europe, and the USSR. We dismissed out of hand, and always have, that the Soviets might use nuclear weapons first against NATO. In which case, it wouldn't matter how many neutron bombs we had stockpiled over there; they all would have been destroyed, along with practically all the rest of our forces and their equipment. This is exactly what the Russians had been telling us they would do, which we refused to take seriously and never did. Yet, as you might recall if you followed the neutron bomb debate over its dozen or so years, never did the U.S. government talk about using it in limited wars. We would rather lose one than use some of these weapons. Which is what happened in Vietnam.

Is it a moral weapon? Granted that killing and wounding human beings for moral purposes seems oxymoronic, if the morality of a weapon is judged in the context of fighting and winning a war, as discriminately as possible, to defeat an aggressor nation (like North Korea, North Vietnam and Iraq), then the neutron bomb has to be the most moral weapon ever invented.

Okay, you have my opinion of what the neutron bomb is all about; an opinion not exactly shared by the U.S. government and vehemently rejected by most other governments in the world. Now let's step through the looking glass together. Let's take a look at how our policy for the use of this weapon evolved and finally dissolved when it was marked for extinction, for reasons never explained but also never requested.

I invented the neutron bomb concept in the summer of 1958 while I was at RAND. This came about not through any encouragement from RAND, which was generally disposed against using tactical nuclear weapons in limited wars. Rather it took place under the auspices of a group called the Air Force Scientific Advisory Board, that provided technical advice to the Chief of Staff and his deputies charged with advancing Air Force weapon systems technology. By and large, the SAB, depending upon who chaired it, was a pretty independently minded group and was expected to be as iconoclastic as it wished, even if it went against the party line on occasions, which were few in number.

In the spring of that year, the SAB had one of their annual get-togethers. At the request of the Air Force, they were to begin an investigation of any and all means of fighting limited wars. Despite SAC's intense opposition to tactical nuclear weapons they requested that these weapons be included in the investigation. My boss at RAND, the head of the SAB's Nuclear Weapons Panel, was assigned the tac nuc job. Knowing little about these weapons and caring even less, he asked me to do his assignment. I was more than happy to oblige. And out of this came the neutron bomb. (Exactly how I did this is not what this book is about, so I'll skip the details of my thought processes and calculations. They're not at all relevant here and probably would bore you to tears unless you're technically inclined and I'm not writing here for technically inclined people.)

Having done my duty, I was obliged to write up a report on my findings, which was purposefully held up by RAND's report editor who, along with many others at RAND, held a deep repugnance for such weapons. I then journeyed to the Pentagon to brief a few, very few, Air Force people on my findings. At the briefing, since he worked at RAND in its Washington office, was my chicken soup pal, Arnold Kramish. By the time I finished, a largely unfilled room was even less full. The reaction could best be described as a yawn, of indifference. With one exception, Arnold, who told me I had something going and that he would try to get others interested in hearing my story. Needless to say, when I returned to RAND I did not find a doubling of my salary awaiting me. Practically nobody could have cared less.

A few months go by. I was now into something else and figured what I considered the cat's pajamas everyone else considered used toilet paper. So be it, until one day Arnold called to ask if the next time I were back in Washington would I be willing to brief a friend of his, a naval officer who was national security assistant to the Chairman of the AEC. I was more than willing. Some weeks later I described the concept to Captain John Morse. Jack previously had been a nuclear weapon planner and had developed an obsession over the need for discriminate tactical nuclear weapons. He just about went through the ceiling with excitement. From that moment on my life never would be the same, as he began promoting me around Washington.

As I mentioned at the very beginning, my intent here is not to write a scholarly historical account about how our nuclear policies evolved. I just want to relate my personal experiences over the years and how they related to these policies. Which I've been doing. So now let's narrow down the scope of these experiences solely to the neutron bomb. What I'd like to do, and will, is to discuss these experiences in terms of how people in various walks of life who in one way or another have impacted on the formulation, or lack of, of our neutron bomb policy. I'll break these guys down into three groups: those in government; scientists; and professional moralists, men of the cloth.

"But I don't want to go among mad people", Alice remarked. "Oh, you can't help that", said the Cat, "we're all mad here. I'm mad. You're mad." "How do you know I'm mad?", said Alice. "You must be", said the Cat, "or you wouldn't have come here." Lewis Carroll, Through the Looking Glass

Which pretty well describes me and the U.S. Congress, and explains why I find it so hard to vote for these guys.

"What's a neutron?" Rep. Melvin Price (D-Ill)

In early 1959 I had my first encounter with members of Congress. Along with a few others, all government officials, I was asked to testify before the Joint Committee on Atomic Energy (JCAE) where I gave the same briefing I had given the year before to the not-too-enthusiastic Air Force audience. Unable to attend were two of the most senior members of the Committee, Rep. Chet Hollifield (D-CA, actually East L.A., where I was raised) who soon was to become its chairman, and Mel Price, the most senior Republican on the Committee who never got to be chairman because the Republicans never got anywhere in the House. Having heard favorable comments from some of their colleagues on my briefing, they wanted to hear it. Soon afterward, the three of

us gathered in a small office. I went through my song and dance, putting up my briefing charts, and explained in detail what I've just described to you about the neutron bomb.

During my performance, Hollifield, who seemed intensely interested, bombarded me with questions and showed every sign of being quite impressed with the concept. (In fact, some fifteen or so years later, he was one of two congressmen who forced a reluctant administration, the Ford administration, to decide on the production of neutron warheads. My great gratitude to them, but they didn't follow up and what they got was not either what I've described to you or what I believe they wanted, for they did not get discriminate weapons.) Price, however, had just sat there, not opening his mouth until I was through, at which time he asked me this profound question. I don't think I've ever been so dumbfounded in my life. Here was a guy who had been on the Committee since its inception shortly after the war. If it weren't for the neutron the Committee never would have come into being. One would think, at least I would, that one of the first things he should have done was to have some staffer give him a talk about how atomic bombs and reactors worked and what a neutron was and what role it played in producing nuclear energy for military and peaceful purposes. If he hadn't been talked to by a staffer, he could and should have asked that question a dozen years before when all kinds of experts began parading before his committee talking about neutrons and other nuclear particles.

So here's a guy, playing a key and very senior role in the formulation of our nuclear weapons policies, who didn't know what a neutron was, and maybe never did despite my efforts to educate him. Makes you wonder, huh?

"This hearing is highly classified and involves nuclear weapon information that should not leave this room. I don't want any of this to get out to the press."

Sen. Clinton Anderson (D-NM)

This was said at the beginning of the hearing where I first testified to the JCAE, whose chairman at that time was Anderson. Naturally, the press had gotten word of it. When the hearing was over, waiting outside was a throng of reporters asking a thousand and one questions of these fine security-minded congressmen, who all smiled coyly and kept their mouths shut. Naturally, shortly thereafter the story broke, got out all over Washington and soon spread all over the world. And the great neutron bomb debate began, all over the world. Who did the leaking? I don't know. Maybe all of them, including the chairman.

As for the hearing, it was a shambles. Why? Because Anderson had come into the room determined to make it one. At the time he had been locked in mortal battle over the confirmation of Lewis Strauss to be Secretary of Commerce. Strauss had been Eisenhower's chief nuclear advisor and Chairman of the AEC and had clashed repeatedly with Anderson. Strauss had been instrumental in establishing the Livermore laboratory, which was in bitter competition with Los Alamos, which was in Anderson's home state. Almost anything Livermore was up to, Anderson was against. Knowing the neutron bomb was being worked on by Livermore and derided by Los Alamos (for the most childish of reasons), plus being in a foul mood over the Strauss confirmation (it was the day before the Senate vote), he was in no mood to treat me very kindly. He sure didn't.

Gulping down tranquilizer pills like they were jelly beans, he denounced the neutron bomb in scurrilous terms (almost identical to the way the commies were to do: it was a pernicious inhuman “capitalist bomb”). He did everything possible to make life miserable for me, asking loaded questions designed to bait me into saying something I shouldn’t to such a powerful senator. Since the questions were impossible to answer without letting him know he didn’t know what he was talking about, I sat there, scared to death, desperately trying to figure out what to say. If I was afraid to open my mouth, his colleagues weren’t and each time a nasty question was asked, one or another of the committee members, mostly Republicans, would intercede and answer for me, usually incorrectly. This got me off the hook and I managed to survive without a contempt (which I sure felt) of Congress charge being filed against me. As I said, the hearing was a shambles, but I did succeed in gaining the interest of a number of congressmen. This led to my getting to know some of them, who turned out to be of critical help in getting the Bomb going.

A few weeks go by and I get a call from Anderson. He was extremely apologetic about his previous behavior and wanted to get together privately with me to find out what it was all about. He suggested I meet him outside the hearing room of the Senate Agriculture Committee, which he also chaired. Then we would go off to some secure area, like his office, to discuss the matter. So off I went, briefing charts in hand, to meet him.

After a while he came out and informed me that the hearing was going to go on much longer than anticipated. He had declared a few minutes recess, so we could go off to a corner of the anteroom where I could give him the briefing as quickly as possible, which wasn’t possible in a few minutes. What could I say to one of the most powerful guys in Congress? I knew I would be violating security, which I don’t think ever crossed his mind.

We went off to a corner of the anteroom, where scads of farm lobbyists and other characters were milling around. I flipped through my charts (marked SECRET, RESTRICTED DATA, meaning they contained sensitive nuclear weapons data) as rapidly as I could, desperately trying to keep curious onlookers from getting a peep. Finally, it was time to resume the hearing and I left, the most relieved guy on the face of the earth.

How much of it Anderson was able to grasp? Probably next to nothing, probably because he wasn’t listening; his mind was in the hearing room. However, from that moment on the JCAE became the staunchest supporter of the neutron bomb in Washington, and was largely responsible for getting the highest priority assigned to the program. For this, I’ve been everlastingly grateful. For my deplorable breach of security in the anteroom corner, I’ve felt everlastingly shameful. As for the relevance of this tale, I’m not sure there is any. Except to say again that many key nuclear policy decisions have been carried out under circumstances only Lewis Carroll could describe.

“The specific purpose of this letter is to suggest you might find it advantageous personally to receive the very carefully prepared neutron bomb briefing that Mr. Sam Cohen, RAND Corporation physicist, has recently given to top Defense Department officials and to key members of the Joint Committee on Atomic Energy.” **Sen. Thomas Dodd (D-CT)**

This is extracted from a letter, sent in early 1961, to President John Kennedy from Dodd. Well before I was given permission, very reluctantly, by the

Pentagon to brief Dodd (and his foreign policy assistant, who turned out to be uncleared) on the neutron bomb, he had become by far the Bomb's foremost champion in the Congress. He had been making speech after speech on the Senate floor warning against signing a test ban treaty with the Soviets that would allow them to test the neutron bomb clandestinely and stockpile it, while we decent American folks would adhere to the treaty and do nothing. Should that happen, Dodd was warning, may the Good Lord help us.

As you might have guessed by now, the President wasn't about to give me any of his time. In fact, he already had been told by his senior military and scientific advisors this was bad business and he shouldn't let himself be influenced by the Congress or anyone else. However, I did manage to get the message directly to him, in the form of a four or five page memo given to him by a military aide (and personal friend) of his, who was a close friend of a good friend of mine in the Pentagon. His aide had him read it one morning while he was getting dressed. (You might recall that Kennedy was a phenomenal speed reader and apparently could read and put his pants on at the same time.) But his mind was cast in concrete on the matter and the word that got back to me was his reaction was essentially "no comment". As for Dodd's letter to him, his reaction was essentially the same, sending a fly-in-the-soup letter back saying he had every intention of looking into it, but not of seeing me.

Dodd, one of the truly great patriots I've ever known, was quite a character with a fascinating background. Before running for Congress he had held down any number of government jobs, including a stint with the FBI where he became a close friend of J. Edgar Hoover, director of the FBI almost forever and one of the great commie haters and hunters of our time. A lot of this, aided and abetted by Dodd's intense Catholic beliefs (in no small way influencing his affection for the neutron bomb), rubbed off on him. When I first met him he probably was the foremost commie hater in the Senate. He really reviled them.

On the foreign policy side his positions were based primarily on a fear of the commies taking over the world and he was forever traveling all over the world to countries he feared would be taken over, sometimes risking his life in the process. On the domestic side he was an impeccable liberal, which had liberal Democrats climbing the wall trying to figure out where this guy came from.

We got to be pretty good friends. Although my marching orders as an employee of RAND, and indirectly the Air Force, forbade me to do this, on many an occasion, when in Washington, I would slip into his office and help with speeches favoring the neutron bomb and against our signing a nuclear test ban treaty with the Soviets, which practically all of his liberal Democratic colleagues favored. Having such a fascinating background, including being one of the American prosecutors during the Nuremberg Trials of Nazi war criminals, and having spent some fascinating moments with him, he's worth a couple of extracurricular tales.

During the 1930s, when Dodd was with the FBI, Hoover assigned him to help track down John Dillinger, the nation's most notorious gangster, who was raising Cain robbing banks and shooting up everything and everybody in sight. Someone had finked on Dillinger, telling the FBI he was a frequent visitor to an upstairs bordello in Chicago, using the downstairs bar as a front, as the senator related the story to me one day. With this information in hand, Hoover told Dodd to stake out the bar, which was halfway okay with him. The okay half was that Dodd was not averse to a drink or two, or three; but as a good Catholic

totally faithful to his wife, he was mortified over the prospect of following some damsel upstairs to do what his moral beliefs forbade him from doing. So he struck a compromise.

He would drop in and have a few drinks every so often, but he would invent every excuse under the sun to stay downstairs — like maybe having a headache, or something like that.

This worked out fine for a while. In the meantime though, Dillinger never showed up and the patrons began getting suspicious about Dodd's sexual preferences. Finally, he realized his life might be in danger if he kept this up much longer. If he wasn't going to go upstairs he was going to get shot, so he requested and received a different assignment on the Dillinger case. They finally got Dillinger, but Dodd, as I recall, was not in on the final act.

By the mid-1960s, Dodd had become a very formidable force in the Senate — hated by most liberals, even though he was one of them, and revered by most conservatives for his anti-Communist and pro-defense views, and a thorn in the side of the White House (even though Lyndon Johnson had been one of his best friends going back to the early 1930s when they worked together on one of Roosevelt's welfare programs) because of his views on nuclear weapons, especially the neutron bomb. One day he discovered his chief assistant, a nice family man like himself, had taken up with his secretary. (I gladly would have done the same if my wife had given me a green light. She was one gorgeous creature.) Because of his moral and religious views, Dodd, tolerant as he was of practically everything else, as a good politician should be, found this intolerable and fired him on the spot. In turn, his assistant leaked out to the media that Dodd had been impropitious in handling his campaign funds. Suddenly, Dodd, who I'm sure you'll agree was hardly unique in this kind of behavior, was in deep, deep trouble. An effort, spearheaded by his liberal enemies, was mounted to censure him. Dodd needed some pretty fancy legal help, but he didn't have the money to get any. (I don't remember the details of his mishandling campaign money, but when it came to spending his own personal money he was the original drunken sailor. It was impossible to pick up or contribute to the tab when you went out to dinner with him, and he had some pretty fancy tastes for restaurants.) So he set about contacting some of his rich conservative supporters to contribute some more money to hire some high priced legal help to help save his political life.

One morning the phone rang at my home in Los Angeles. Dodd was in town, staying at a swanky hotel in Beverly Hills, waiting to see a fat cat by the name of Pat Frawley, who had made a jillion dollars making Shick razors and razor blades (and I guess some other things too), who lived in a big mansion in Bel Air, not too far from where Ronald Reagan now resides. He didn't want to leave the hotel for fear he might be discovered by the reporters, who had been dogging him all over the place, and wondered if I could come over to keep him company until Frawley was willing to see him. For the next dozen or so hours I did keep him company, as he put away more scotch than I thought was humanly possible, while he waited to hear from Frawley, as far right a commie hater as existed in those days, which naturally attracted him to Dodd. I've never been witness to so humiliating an episode, as this right winger, holding all the cards (money) kept a U.S. senator, totally devoted to his country's security, waiting and waiting, to prove who ranked over whom when the chips were down.

Finally, about ten o'clock that evening, the call came. In my little Red Volkswagen I drove a U.S. senator off to Frawley's estate where a guard let him in. I never saw him again. He was unable to get off the hook and was censured. That was the end of his political career and not too long after that, his life. He died literally and figuratively of a broken heart. Which broke my heart.

As I said, there wasn't a more fervent supporter of the neutron bomb. He paraded me and my briefing around to as many senators as he could get his hands on. (One of them was his friend Prescott Bush, also from Connecticut, daddy of George, who took almost as great a liking to the Bomb as Dodd and joined him in promoting me to even more senators.) However, when it finally became clear that the Kennedy administration wasn't going to move on it, and was getting hopping mad at him for picking on their nuclear policies, Dodd backed away. His reelection was coming up and the White House had hinted it might even oppose him if he didn't get off their back. I was more than a little miffed over this and went to see him, practically demanding an explanation. His answer couldn't have been more forthright. "Sam", he told me, "the first duty of a politician is to be elected."

I didn't understand what he was trying to tell me and left his office feeling betrayed, and more than a little outraged. I purposefully saw practically nothing of him after that until that miserable day (and night) in Beverly Hills. Chalk up another example of how shamefully I can behave. I've never forgiven myself for this. I don't deserve forgiveness; what I did can't be undone by any atonement.

"Mr. Cohen, I have to tell you that this is one of the most important matters that's come to my attention. I can't tell you how much I was impressed with your briefing." **Sen. John Stennis (D-Miss.)**

At this time, and for years before, Senator Stennis had chaired the all-powerful Senate Armed Services Committee and wielded enormous influence on matters of military policy, development and, especially, procurement, where the big bucks and jobs are. He was the quintessential Southern gentleman — charming, gracious, courteous and all such other attributes. Along with a few other influential senators he had been requested to hear my neutron bomb briefing by Prescott Bush, who also attended to hear it for the second time. (Had Prescott lived long enough to find out what George thought of and did to the neutron bomb — he did it in for not one single solitary sound military reason — he might have, and should have, taken him off to the woodshed for an old-fashioned whipping.)

Here we go again with my sweet behavior around people, regardless of who they are. "Senator", I replied, "I sure appreciate your remarks but I have to tell you that we've met before, in your office where I gave you the identical briefing." Poor Stennis. He flushed in embarrassment and apologized profusely, and courteously, explaining he had so many things on his mind (no doubt he did) he had completely forgotten the first briefing. Now I was even more embarrassed than he was, for my behavior. But the damage had been done. How much? Probably next to none. Nevertheless I hadn't minded my manners (What manners?) very well and I should have. This kind of behavior is uncalled for around practically anyone, especially senators in the company of other senators; none of them caring to show up in the light that Stennis did.

It's really not very helpful to anyone, including yourself, unless you feel your ego needs a little massaging by acting sadistically; and some times it can be pretty harmful, particularly to yourself if you fancy yourself important and up to something good for your country, as I did during those heady wine days. As for hurting Stennis's feelings to the point of hurting the neutron bomb cause, no way. He gave every impression, both times I met him, of being too big a man to let such behavior as mine influence his opinion one way or another. Besides, he had to be well aware, being so deep into the military business, of the attitude of the administration (of his party) on the neutron bomb and besides that, gracious courteous senators don't turn down requests from other gracious courteous senators. And if there ever was a senator who was every bit the true gentleman, it was Prescott Bush. My guess is that Stennis couldn't have cared less about the Bomb and would have done nothing in the slightest to oppose it because of my slighting of him. Had the Bomb been a big ticket multibillion dollar item that could have been produced in Mississippi, his interest in having it produced might have been different. But nuclear warheads, compared with the weapon systems that deliver them, are dirt cheap and no congressman is going to go to bat for a warhead to get more jobs in his state.

As for the moral of this story, it's more of the same. Here are these very influential guys sitting around in the Congress. If they want to, for their own good, or bad, reasons they can force an administration to do something it doesn't want to do. Which is precisely how the decision finally was made to develop and stockpile the neutron bomb. But they pay no more attention to a lot of these nuclear policy issues than someone crossing the street, unless he's from their home state. Regarding home states, I'm reminded of another story, having nothing to do with the neutron bombs but a lot to do with the development of nuclear weapon delivery systems and how a key decision was made in this area, by another charming, gracious, courteous Southern senator.

After World War II, to get with it in the Nuclear Age, the Air Force properly decided to build a new aeronautical testing center. Among other things, it would require such huge powerful wind tunnels that in some cases actual life-sized models of new jet combat aircraft and guided missiles that could deliver nuclear weapons (and conventional weapons as well) could be tested. To run these wind tunnels, it was essential that the facility be located near an extremely large source of electrical power. This requirement narrowed down the choice of operating sites considerably.

To help the Air Force decide where to put the facility, a panel of highly distinguished aeronautical scientists and engineers was put together. (Secretary to the panel was my pal Vince Ford, who got Bennie Schriever his ICBM job, who told me this tale.) The panel was asked to evaluate different candidate sites and then present their findings.

Now it really wasn't necessary to appoint this panel, for the solution was obvious. The site should be in proximity to the Hoover Dam where an abundance of power existed and Southern California, with its huge aircraft companies and renowned technical institutions, like CalTech, was close at hand; all this allowing the facility to be operated most expeditiously. Nevertheless, to appear impartial and objective, the panel considered other sites with extensive power availability scattered around the country.

When the panel had finished its work and issued its report, it went through the paces of briefing those individuals and agencies concerned with the selection. When they got around to briefing Congress, out of courtesy, deference, and grim political necessity, the first guy to be briefed was Senator Kenneth McKellar (D-TN), Chairman of the Senate Appropriations Committee, who happened to have the Tennessee Valley Authority in his state, which did put out quite a lot of electricity. However, the general area around the TVA hydroelectric installations had little else to recommend for it in the way of technical support.

As the briefing proceeded, McKellar seemed very attentive and listened intently. He showed no signs of objecting to the obvious implications of the briefing, that the facility shouldn't be built in his home state. The briefing over, the good senator, every bit the stereotypical Southern politician, highly praised the panel for their splendid objective analysis and then calmly informed them: "Gentlemen, I want to thank you so much for coming here. You've done a very impressive study that should be appreciated and admired by everyone. Now, speaking for myself, I have to tell you that I don't care where this facility is going to be built, provided it's built in Tennessee." Guess where it went.

"Sam, I want to ask a special favor of you. Tomorrow, Dean Rusk (Kennedy's Secretary of State) is coming before the Foreign Relations Committee to testify on the nuclear test ban. If you have the time, I'd really appreciate it if you could write out some critical questions for me to ask him and what his answers ought to be. I'd particularly like for you to bore in on the neutron bomb which you've told me can't possibly be detected if the Russians were to test it clandestinely. I'm really bothered over the Administration position on the ban and if I have to I'd like to nail Rusk to the wall on this issue. So if you would, here's my office, I'll be gone for the afternoon. I'll tell my secretary to drop everything and type up what you write." **Sen. Stuart Symington (D-MO)**

Now that's what I call high flattery. Here's a very senior and powerful Democratic senator asking me to help him tackle a Democratic President's position on the test ban, which was then a red hot political issue in Washington, and having a God-sent opportunity to get in a real plug for my bomb. With that, I sat down in his big chair at his big desk in his huge office and starting scribbling away with the intent of being as nasty as I could, knowing I had all the facts in my corner. When I was through, I was convinced, at least intellectually, that Symington had a real chance to turn the issue around.

I had briefed Symington on the neutron bomb a couple of years earlier and he took to it like a duck takes to water. He also had taken very kindly to me and had asked me to drop into his office anytime I was in Washington to talk about nuclear matters and he would do his darndest to be available. Which I did any number of times and we became good acquaintances, almost to the point of being friends. Far more important than our acquaintance and our really rewarding discussions (he was a very intelligent guy who had years of experience in the defense business, starting with being Truman's Secretary of the Air Force in the late 1940s) was his unstinting support for the Bomb, which continued long after practically all of Congress had forgotten about it.

In fact, he was one of two Democratic congressmen, the other being Chet Hollifield, who were primarily responsible for forcing the Pentagon to finally develop and produce the Bomb, as loathe as it was to do so. This was during the

Ford administration. But suppose Hubert Humphrey had beaten Nixon in 1968, which came with a whisker of happening, and were President at that time, the mid-1970s. In that event, what do you think Symington and Hollifield would have done toward forcing the Bomb on the Administration? Do you think they would have bucked a President of their own party? Over a two bit item that almost nobody else could care less about? Don't bother to tell me.

Late the next day, I called Symington's office and checked in with an aide of his, who had sat in on the hearing, to see how the senator had made out with Rusk. Well, the poor guy was embarrassed to tell me, he hadn't quite made out. In fact, he never had the chance to ask any of my questions; it didn't seem propitious to do it at the time. Translation: Symington had thought the better of it and decided it was politically unwise to tackle the Secretary, and indirectly the President. This was something I just couldn't understand. It was also something I just couldn't tolerate. I didn't want to have to see Symington again and go through the strain, at least in my mind, of speaking with him without asking why he pulled away from asking the questions. So I pulled away from him and never saw him again, although I'm sure he would have been more than delighted to go on with our relationship. I'm equally sure I could have been of some real help to him on matters that weren't so politically sensitive at the time.

As I think back on this episode, which I do now and then, more now than then as I get older, I really torture myself on the shameful way I behaved with Symington. He's no longer with us, like so many of the characters I've been bringing up, but nevertheless I'd like to apologize to him. I should have done it while he was still alive but didn't have the courage or the decency to do so. He treated me with great friendliness and even affection. I regarded him with hostility and even contempt.

Incidentally, speaking about Dean Rusk, sometime after I had booted Symington out of my life, I had lunch with a retired Army general, Albert Weddemeyer, who had achieved a measure of fame in World War II, during which we discussed the neutron bomb (He thought it was a splendid weapon for the Army.) During the war he had risen from being a key planner for General George C. Marshall, the Army's Chief of Staff, to commander of U.S. forces in the CBI (China-Burma-India) theater. On his staff was a very bright young colonel named Dean Rusk who Weddemeyer had admired greatly. He asked me how his former protégé was doing as Secretary of State, especially in regard to our nuclear weapon policies. In my typical fashion I gave him an unvarnished very uncharitable assessment of Rusk, explaining why. He professed to be appalled that "Dean" was capable of such behavior and allowed he was going to get together with his former subordinate and straighten him out, but good. Whereupon I told the general of the utter impossibility of having the slightest effect on the Secretary, explaining that whereas he, Weddemeyer, was the same guy as he was in the war, Rusk was not. As admirable a person as he seemed to be, he was a different person who would be unable to comprehend what Weddemeyer might try to tell him. Policies had changed so drastically since they worked together in the war, that Weddemeyer would have appeared incoherent to Rusk. I could have added that any number of officers who had worked for Weddemeyer who were still on active duty and had become generals were now of the same mindset as Rusk. Had he gone to see them, they would have treated him with all the respect their former boss deserved and respectfully taken the lambasting he would have given them. And when he left

their office, it would have been like he never came in. I could have told him this, but didn't have the heart.

"Look, Sam, I don't want to have anything more to do with tactical nuclear weapons, including your neutron bomb. I'm concerned with strategic weapons and I'd appreciate any help you might give me on what we should be doing in this area." **Rep. Craig Hosmer (R-CA)**

Hosmer, who had become the senior Republican on the JCAE, was by far the most diligent and informed member of the committee. As a naval reserve officer, soon to become an admiral, he was extremely well versed on military matters. I had met him ten years earlier and quickly formed a close working relationship and friendship with him. He had fought ceaselessly for the neutron bomb and had been constantly badgering the Defense Department to do something about it. (On one occasion he had asked me to draft a letter from him to the Secretary of Defense, telling him to get going and produce it before the Russians did, which they probably already had done. If you'll excuse my immodesty, it was a very good letter and its recipient, Clark Clifford, as bright a guy as they come, surely must have gotten the message. There was only one problem, though. Clifford was a Democrat who had no intention of doing anything about it because neither did his boss, Lyndon Johnson, who had demolished Barry Goldwater in the 1964 elections when Goldwater, who I had briefed on the Bomb and really loved it, had suggested we use very low-yield nuclear weapons in Vietnam to win the war. Clifford's response was a non-response letter, saying essentially nothing.)

With such a record of dedication to our common cause, why in heavens name would my old pal Craig tell me this? Real simple, his old pal, newly installed President Richard Nixon, who had persuaded him to run for Congress in the first place, was not about to pull another Goldwater fiasco by coming out for the neutron bomb, or do anything to change the battlefield nuclear stockpile in a more discriminate direction. He realized that the nuclear name of the game was in the strategic nuclear arena where he hoped to get an arms control treaty with the commies he had formerly so despised and distrusted, and thereby establish himself as a man of peace and hopefully clinch his chances for winning the next election. Craig, whose loyalty to Nixon by far transcended his devotion to the neutron bomb, and me, wasn't about to get pushy on the Bomb now that his Republican pal was in the White House.

As you can well imagine, I was more than taken aback by Hosmer's brusque refusal to even want to discuss the matter. From that moment on, thanks to me, our relationship began to cool. However, out of loyalty to him as a good and trusted friend, and for what he had done when it was politically correct to do so, I continued seeing him and tried to help him at every opportunity.

This was at a time when I was working in the Pentagon on the first Strategic Arms Limitation Talks (SALT I) and was in a position to fill him in on the hanky-panky that was going on in formulating the U.S. negotiating position, which was more than a little disgusting as these guys, all good loyal American citizens, lied in their teeth to protect their turf. Given the separation of powers between the Executive Branch and the Congress, I wasn't supposed to do this, but I did. I knew in my heart that as devoted as he was to Nixon, he was too devoted an American to go along with a SALT treaty he thought might endanger his country's security. (When we signed the first SALT agreement in

1972, he called me immediately to ask if I was for or against it. I told him it stunk to high heaven, was full of holes and might even be dangerous, for the kinds of reasons I've put forth here. However, I added that even if it was a rotten agreement, in view of our nuclear policy ratifying it or not ratifying it would have no significant effect on our security. If your policy is to blow up the world in the event of war, what difference does it make if the other guy has more weapons than you to help blow it up. He thanked me profusely and allowed I had just made up his mind for him. I think he was sincere.)

One day I came into his office and found him in an absolutely ecstatic mood. He had just come back from the White House where, along with some other ranking congressmen, he had been given a long briefing on the SALT I negotiations. I figured he was going to tell me how brilliantly Henry Kissinger, Nixon's national security advisor, had performed. I was dead wrong. The entire briefing, lasting a couple of hours, had been given by Nixon himself who with no assistance from Kissinger, or briefing charts (which I would have needed or I would have been tongue-tied), had held forth in great detail, explaining what was going on and fielding every question with ease. Never, during all his years in Congress, had Hosmer witnessed such a dazzling performance. Along with all the other congressmen, Democrats included, he had been enormously impressed with his pal Dick, and expected me too. I wasn't. Which had him hopping mad at me until I explained that not only was I unimpressed, I was downright appalled that such a briefing could even take place.

"For Christ's sake, Sam, what the hell's gotten into you?!", he exploded. My response was: "Craig, you know I've been real deep into this SALT business and I think I know quite a lot about it. What you've been telling me is that Nixon knows at least as much about it as I do, maybe even more. You're probably right. I know a lot about it because I'm spending most of my time on it. That's what I'm paid to do. That's not what a President is paid to do. As bright as this guy may be, he's got the job of running the country and he has to find time to find out what's going on in all the other problem areas a president is supposed to know about. What you've just told me is that he's not spending enough time on other things that are far more important for his political well-being, and the country's too, than a lousy arms control treaty. He's not going to get reelected on the basis of a treaty but rather because the domestic problems aren't getting out of hand, unless he's lucky enough to have an opponent who's so incompetent nobody will vote for him." Craig got my point and backed away, more than a little chagrined. I remember dropping in to see him a few years later, the day after Nixon had easily defeated George McGovern. I commented that Nixon had won so easily that you might think he had hand-picked his opponent. Grinning from ear to ear, he told me "Maybe he did."

Nobody was more dedicated to his country's security than Craig Hosmer. However, in pursuing his country's best interests, as he saw them, as a savvy politician, on occasion, he was not above acting like a bit of a scalawag. In this respect, I remember visiting him during the mid-1960s, just after he had returned from a trip to Switzerland where he had attended a United Nations meeting on the international control of nuclear energy whose underlying purpose was to keep non-nuclear weapon countries from acquiring nuclear weapons. At issue here was nuclear countries trying to make a lot of money by selling non-nuclear countries nuclear power reactors, but trying to make sure

the fissionable material wasn't diverted for military purposes — like making bombs.

Craig, who sided solidly with the nuclear power industry in the U.S., was over there trying to make sure its interests were being best represented. A critical vote was coming up and it looked touch and go whether it would come down on his side or on the side of those who feared more bombs more than more nuclear power. The moment of truth was at hand and Craig now felt compelled to act like a ward heeling big city politician rather than a dignified representative of his government.

During the conference he had become quite chummy with a representative from some African country who wielded considerable influence with a number of other representatives. This guy was very black and had confided to Craig his great desire to share the embrace of a very white, very blond young Swiss damsel. However, being a diplomat of considerable esteem and worried about keeping up his image, he didn't know how to go about this without attracting attention. Was there any way Craig, who had a reputation for having a great fondness for the opposite sex, wherever she was, might help him? No problem, Craig told him, and in no time at all he lined up the African with the girl of his dreams. When the vote came up it was decided in favor of Craig's position, which was not exactly the position of the State Department who worried more about other countries getting bombs than the U.S. nuclear industry making profits. I'm sure this wasn't the only time U.S. nuclear policy issues were resolved, at least in part, in bed; as good a place as any — maybe better.

You can judge for yourself how ethical, or even moral, Craig's behavior was on this occasion. I thought at the time, and still do, that it was perfectly ethical and moral. He did this solely in the interests of his country, as he saw them. I also happened to share his views at the time on nuclear power vs. nuclear proliferation. Not today, however. Too many changes have taken place: At least in the U.S. nuclear power is down and out and the mamby pamby way the U.S. continues to deal with the nuclear weapon proliferation problem, unlike our Israeli friends who don't take anything from anybody when they see a nuclear threat looming in some nearby Arab country, really bothers me. I'd like to see us act like the Israelis, but we're not about to. And I'm afraid one of these days we're going to be faced with a host of nuclear threats against us, despite all this arms control tomfoolery we keep playing around with, which we're unable to cope with.

After some 20 or so years sitting on the JCAE, Hosmer decided it was time to call it quits. The chances of the Republicans taking over the House were slim to none. So were his chances of chairing the committee. As such, he decided he would capitalize on all his nuclear experience by becoming a nuclear capitalist. He retired with his pension and set up a small outfit in Washington to lobby for the nuclear power industry, using all the connections he had in Washington, especially in Congress. That was fine with me, being a strong advocate of nuclear power.

On the other hand, probably because there was no money to be made and maybe a lot to be lost, he never lifted a finger to lobby, directly or indirectly by writing articles, books, or giving speeches, for a sounder nuclear weapons policy. In fact, when I would visit with him on occasion, he refused to even discuss the issue with me, telling me that enough was enough, he had had his

fill of the matter. Finally, I decided I had had my fill of him and, without ever telling him why, I never saw him again.

Of all the congressmen I knew, I had been closest to Craig by far and never had he done anything to personally anger me. He really liked me, and vice versa. Yet, in my own inimitable way I twisted his actions to mean that he had turned on his beliefs, and me, when there was still so much he could have done to help the cause, with a background like his. Looking back, I was dead wrong. There was nothing he could do on these issues except to preach to the choir and that accomplishes nothing, unless it makes you feel good. Craig had every right to do what he wished with his life, especially after having led such a productive life. In my own warped way I chose to deny him that wish. Shame on me and it was a great shame that our relationship came to such an unwarranted ending; a greater shame that I bore responsibility for that happening.

“A single death is a tragedy; a million deaths are a statistic.” **General Secretary Josef Stalin (Communist-USSR)**

If you’re wondering why I’m bringing Stalin into the act, in discussing the U.S. Congress and the neutron bomb, it’s because I once quoted him in responding to charges made against the Bomb by a member of Congress, Patricia Schroeder (D-CO), whom I had never met and never wanted to because I despised her at the time. As of today, I wouldn’t mind meeting her at all, for we have a good deal in common on defense matters I’d like to discuss with her. It’s not that she’s changed in any appreciable way in recent years, it’s that I have. Looking back, I do feel a bit ashamed of myself for having taken such a dim view of her. But since I’ve been dwelling on the Congress and how it’s treated nuclear weapon issues, let me relate a story that goes back almost 20 years ago, having to do with what the congresswoman said about my favorite weapon.

Schroeder, a member of the House Armed Forces Committee, who sat on a subcommittee dealing with nuclear weapons, which she didn’t care for at all, had written to the Pentagon on the neutron bomb expressing grave concern that its use in NATO might result in many thousands of radiation casualties to American soldiers in the front lines. This was at a time when the Reagan administration professed to be highly enamored of these weapons and was hoping to send them over to Europe. The Pentagon got a little panicky over this accusation: no congressman or congresswoman wants a nuclear weapon that will wipe out thousands of our own boys. It’s bad enough that conventional weapons do this by accident, but for a nuclear weapon to do this because it’s unavoidable is intolerable.

Toward responding to Ms. Schroeder, the Pentagon appealed to an outfit called the Defense Nuclear Agency, which worked for the Joint Chiefs of Staff, whose job was to worry about all aspects of nuclear weapons, including such matters as what military parlance refers to as “friendly troop safety”. At the time the JCS request reached DNA I happened to be a member of an advisory panel charged with assessing this and associated matters having to do with nuclear radiation effects. Knowing most about neutron bombs and their effects, I was asked to check into Schroeder’s contention. Knowing in my heart she was dead wrong, I gladly agreed and set about performing a small study to see what the score really was. This meant getting hold of NATO war plans and scenarios for possible battlefield nuclear use.

When I finished with my calculations, a rather startling number came out of the hopper. Were we to use some dozens of neutron bombs to try and blunt the initial Soviet armored assault against our forces, the expectation was that exactly *one* American radiation casualty would result. With this result in hand, I wrote up a brief report which ended, in a philosophical vein, with the above quote, which was part of a response Stalin gave to a British reporter during the great purges of the Thirties when he murdered and starved millions of his own countrymen.

So much for the veracity of Rep. Schroeder's allegation, which she may have spun from whole cloth. My results in hand, I dutifully submitted my report to DNA explaining what I had done, expecting it would be sent to the JCS who would pass it on, or at least the results, to Schroeder's office. No such thing ever happened. Why? Since I never asked I don't know. But I'll give you a good guess. As much as the JCS claimed to like the neutron bomb, which couldn't be farther from the truth, they claimed to like it because the President claimed he did, the facts were that you don't go around making an influential congresswoman out to be a boob. You pull that stunt and there will come a day when you regret it, when some key vote on a weapon system that really counts comes up and, still miffed, she votes against you. Looking back, I don't blame the military for being so chary, as outrageous as Schroeder had been. Yet, at the time I was deeply saddened to find out that the mentality, or morality, of the Pentagon hadn't changed in any way from that of the McNamara days when it wouldn't even challenge itself over such enormous distortions of the truth.

"Only a mustard isn't a bird", Alice remarked. "Right as usual", said the Duchess, "what a clear way you have of putting things!" It's a mineral, I think", said Alice. "Of course it is", said the Duchess, who seemed ready to agree to everything that Alice said. "There's a large mustard mine near here. And the moral of that is — The more there is of mine, the less there is of yours." "Oh, I know!", exclaimed Alice, who had not attended to this last remark. "It's a vegetable. It doesn't look like one, but it is." "I quite agree with you", said the Duchess, "and the moral of that is — 'Be what you would seem to be'; or if you'd like to put it more simply — 'Never imagine yourself not to be otherwise than what it might appear to others that what you were or might have been was not otherwise than what you had been would have appeared to them to be otherwise.'" **Lewis Carroll, *Through the Looking Glass***

Which pretty well describes what I went through when I wandered through the offices of our national security policy makers in the Executive Branch of our great government, peddling my bomb.

"This is absolutely amazing? To think we can have a weapon that destroys physical objects and saves people. You have discovered a truly revolutionary weapon!" **Robert Murphy, Undersecretary of State for Political Affairs**

This profound statement was made in 1959 during a briefing I gave to a handful of top officials in the State Department. Murphy, like the others, seemed spellbound as I went through my act and could hardly wait to expound on how impressed he was. However, what had impressed him about the neutron bomb obviously was something it wasn't. Poor Murphy. No sooner had he opened his mouth when a chorus of derision from his colleagues descended upon him, leaving him as flustered as anyone I've ever seen. It also left me as

flustered as I've ever been, for I found myself wondering whether I was Alice or the Duchess in having failed so miserably in explaining to such a distinguished statesman that a mustard isn't a bird. Murphy was no dope; in fact his diplomatic acumen had made him a living legend, and here was I making him a laughing stock among his distinguished peers.

Now I wouldn't pretend to know what was going on in Murphy's mind as he listened to my pitch. I would guess though, that as someone so deeply immersed in human affairs, he was hearing what he wanted to hear. Here was a bomb that could be directed against things people use in war but not against the people who use them. Now I might say that it is possible to devise a nuclear weapon that in many cases can destroy valuable physical military targets without necessarily killing people, and with great discrimination. I did devise such a weapon concept; and got nowhere with it because it was "nuclear". But this was at a later time when all battlefield nuclear weapons had been effectively ruled out by U.S. policy. Had I described such a weapon to Murphy, my guess is that he would have been entranced beyond compare and said what he did say about the neutron bomb. It's far more diplomatically correct to talk about wars that don't kill people, even though that's what wars are all about. How do you get a country to support a war where nobody is killed, where the heroes are inanimate objects that have bravely stood up to weapons of physical destruction? Diplomats may prefer such a war, but warriors don't, nor do the folks back home who want their warriors to act like warriors — namely, kill other warriors and get killed by them.

"Can't you do something to this weapon so it does what you say it does but isn't nuclear?" **Gen. George Decker, Chief of Staff, U.S. Army**

Like Ambassador Robert, but for the right reasons, General Decker was really taken in by the neutron bomb. It represented the Army's dream for being able to fight and win a battlefield war in the best tradition of what is referred to as the Laws of Land Warfare, which among other things seek to limit the war to the warriors without excessive harm to non-warriors. I was compelled to tell the good general that, as Gertrude Stein might have put it, "A nuke is a nuke is a nuke ... and you can't denuke a nuke." He seemed quite unhappy to hear this and resigned himself to leading an army that probably would do most things the Laws of Land Warfare would forbid. Alas! As for the kind of nuclear weapon that Murphy fantasized I was describing, my guess is that Decker couldn't have been less interested.

"I'm glad you appreciate my coming here, Fred, but I only came to make sure you're really leaving." **Gen. Earl Wheeler, Chairman, Joint Chiefs of Staff**

I personally liked Fred Wyle, not because I agreed with him on most issues. I sure didn't. However, he struck me as a pretty decent, if brash and abrasive, open-minded guy willing to hear out both sides of an issue, even if he already had made up his mind on one side, which was the case for battlefield nuclear weapons — he just plain didn't like them, but was willing to argue about them. He had come to the Pentagon from the State Department, holding to State's policy position on military matters, and into a high ranking job in charge of policy planning. This was during the McNamara reign, in the mid-1960s, at which point, with full encouragement from the boss, his top civilian underlings

held the military mainly in contempt. This was particularly true for those in the military, not too many of high rank, who thought battlefield nuclear weapons held an important role. Fred, in his own rambunctious way, had managed to make life miserable for the military brass before deciding to go back to practicing law. When General Wheeler showed up at his retirement reception I suspect he was the happiest guy there.

(As for Wheeler, he was one of the many generals and admirals I briefed, privately in their office, on the neutron bomb, allowing a frank discussion, if they felt like one, where they could let their hair down, if they chose to, away from their staff. He was one of those relatively rare military intellectuals, extremely bright, who really put me through the wringer with some of the most penetrating questions I've ever been asked. He wanted to make sure there were no holes in my story and I was able to satisfy him there weren't. He gave me a pile of accolades for devising the concept but was totally non-committal over what he thought ought to be done. Had he committed himself in favor of the Bomb and the word gotten out [quite possibly through me who might have confided to someone who I knew I could confide in and who had been a key player in selling the Bomb, who would have confided in someone else...], the Fred Wyles in the Pentagon would have made life even more miserable for him.)

When I had first discussed the neutron bomb with Fred, while hardly converted (that was impossible) he was troubled to discover all nuclear weapons weren't equally pernicious. At least one weapon might merit consideration as an option we might want to have in the future, just in case. Whereas he hardly was about to change or even weaken his stance, nevertheless he thought some of his former policy planning buddies at State ought to hear what I had told him. So off I went to State.

To set the stage for my experience there, we're talking about a period when the light of the end of the tunnel McNamara had predicted earlier, that our boys would be home from Vietnam by Christmas 1964, was too dim to be seen. We were really getting mired down and some in the military were screwing up their courage and talking about using nuclear weapons to win the war. But these were the guys at the headquarters of the Pacific Command near Honolulu who were directly in charge of running the war, not those back in the Pentagon who had McNamara (and Fred Wyle) looking over their shoulders to make sure they were toeing the line. As a matter of fact, McNamara became so worried that political pressures might mount for nuclear use that he issued a public statement saying: "There is no requirement for the use of nuclear weapons or devices in the current situation in Vietnam. The Joint Chiefs of Staff have no proposal under consideration for the use of nuclear weapons or devices in Vietnam and they have made no proposal to the Secretary of Defense for the use of nuclear weapons or devices in Vietnam. Nor is any responsible official of the Department of Defense considering the use of any nuclear weapon or device in Vietnam." Pretty tough talk, I'd say. And in this antinuclear climate in the Pentagon I'd say it was pretty courageous for Fred to set me up at State.

Okay, so here I am in front of a bunch of State guys I knew were going to be hostile toward nuclear matters. However, little did I realize how really hostile they were going to be. I began with my standard neutron bomb briefing. They listened politely and even intently, but none of them seemed swayed in the slightest, nor did I expect anyone to be. Having no ambitions, or ability for that

matter, to rise through the diplomatic ranks of our country (How long do you think I would last as ambassador to Lower Slobbovia, even if they loved neutron bombs?), rather undiplomatically I challenged them to tell me just what was wrong with using a weapon that had all these peachy keen features that precisely fit in with avowed U.S. objectives for fighting wars as discriminately and humanely as possible. Their response was simple and predictable: It was a nuclear weapon. That settled that, and thank you very much. I wasn't satisfied.

What about a bomb that uses nuclear energy but produces only non-nuclear effects on the targets, but a lot more effectively than a conventional high explosive bomb, I asked them. This had them curious, so I described the concept described earlier here, where a nuclear explosive propels ultra-high speed projectiles toward the target, far more discriminately than many of the bombs we were using in the Vietnam war. I was wasting my time. "It's a vegetable. It doesn't look like one, but it is.", said Alice. (Like some haute cuisine chef doctoring up broccoli so it doesn't taste or even look like broccoli and presenting it to George Bush, telling him it's broccoli. George, as he did in Tokyo, would get nauseous and throw up without having taken a bite, as he threw away the neutron bomb with no apparent idea what he was throwing away. It was a broccoli bomb.) Substitute "nuclear explosive" for "vegetable" and you've got a State Department official who hates okra. So do I. Or, rephrasing the Duchess, "Never imagine a nuclear explosive not to be otherwise than what it might appear to others that what you said it was would have appeared to them to be otherwise." I was really butting my head against a stone wall. In my own obstinate way, however, I persisted in trying to figure out just how antinuclear they were.

One of my nuclear weapon friends had calculated the possibility of a giant rocket propelled by nuclear explosives (Project Orion) that in theory would allow sending an expedition all the way to Mars or some other place in the solar system far more cheaply than using conventional propellants. As Trev Gardner would have put it, it seemed like a "doable do". Having described the idea to them, I now posed the question: "Suppose we based this rocket in the U.S., far away from the theater of operations, and loaded it up with conventional ordinance that in a small fraction of the time could do a far greater amount of target damage than a whole armada of heavy bombers?" Which we were using in Vietnam but with very limited success because the enemy frequently was able to get wind of the oncoming attack and get out of harms way. Since I was describing a fantasy which if it ever became a reality wouldn't be available for decades, if that soon, you might think they would unwind a bit and admit that in the interim our policy might change and be more receptive to such a scheme. But I might as well have been an iconoclastic apostle sitting around the table with Jesus Christ, telling him: "Look boss, you've got something going here, but don't go getting any ideas that 2000 years from now anyone will still believe this stuff." As far as they were concerned, if it involved a nuclear bang, it never would make any difference where the bang took place.

By now I was beginning to get the message. The proper thing to have done was to thank them one and all for their valuable time, and left. I wasn't about to, figuring if they didn't care for anything nuclear that went bang, what about something that didn't go bang. At that time, Los Alamos was working on a space rocket that would be propelled by the energy from a super high-powered nuclear reactor. Calculations indicated this was a more efficient way to send

some payload into outer space than using regular rocket fuels. So I substituted the nuclear reactor rocket for the nuclear bang bang rocket and awaited their response. No way. So long as it was nuclear, it made no difference whether it went bang or not.

By now, I sensed some of these guys were getting a little queasy over their stringency. One or two of them had seemed a bit hesitant to reject the nuclear reactor idea but wouldn't come out against their colleagues who did. So I decided the time had come to shove it to them, for there was a reality at hand, in contrast with the fantasies I had brought up. We happened to have some nuclear powered aircraft carriers around, loaded up with conventional ordnance (and nuclear ordnance too, but that readily could be unloaded if it made our policy guys too nervous, although it would have driven the Navy up the wall). What about sending a nuclear carrier off to the South China Sea where aircraft carrying high explosive bombs could be dispatched against North Vietnam? Certainly, when these carriers were laid down, nobody in any responsible position in government would have dared deny them such missions. Now, finally a real split developed in these anti-nuclear ranks, although the consensus ruled against doing this.

With that I figured I had made at least one good point and didn't care to push my luck any further. I shut up. They got up and left. Fred Wyle thanked me, really genuinely, for coming over and taking all that flack. I told him, really genuinely, I had mainly enjoyed it and it had to be one of the most fascinating experiences I had gone through in Washington, for which I thanked him.

Some months later, when our predicament in Vietnam was worsening by the day, the nuclear powered U.S.S. Enterprise sailed off to Southeast Asia and launched thousands of sorties against the commies — to no avail toward winning the war. It was around this time I was beginning to turn against the war, as agonizing as it was for me. By the time we finally pulled out I was against all overseas wars, for reasons pretty well explained by my State Department experience. I didn't care to see the lives of young Americans decided by these kinds of guys.

I still don't care for the State Department. In fact, I care less for it with each passing day.

"I think we ought to put in requirements to the JCS for this thing. Any objections? What do you think, Mr. Cohen?" **Adm. Harry Felt, Commander-in-Chief, Pacific**

Needless to say, there were no objections from the admiral's staff, but I felt compelled to warn him. If he did so, I told him, and the requirements reached the Joint Chiefs, for whom he worked, two things would happen: (1) They would be in a state of shock over the admiral's audacity; and (2) The requirements would be filed away and forgotten. I'm talking, of course, about the neutron bomb which I had just briefed to Admiral Felt and his staff, shortly after McNamara took over as Defense Secretary. (You already know, from the Pentagon news dispatch I quoted from, how McNamara felt about nuclear weapons being used in Vietnam, in a war directly under the admiral's command.) I wasn't around to see the looks on the Chief's faces when Felt's requirements reached the JCS, but needless to say they were filed.

Several years later, when American blood was increasingly being spilled in the Vietnam war, Felt's command, under a new admiral, and with considerable

under the table help from me tried again. (RAND, which was now under the thumb of McNamara, who was under the thumb of some ex-RANDites who had sold him on their anti-nuclear ideologies, would have had a conniption fit had they found out what I was up to.) Again, the same thing happened. Also around this time, the Livermore nuclear weapons lab, which had successfully tested a real gem of a neutron bomb, proposed a crash program to get a couple hundred of these off to the Vietnam theater, just in case. They were treated as would be a ten year old asking his parents for money to go off to an X-rated movie.

Not too long after that, RAND found out about my nuclear antics in Hawaii and delivered an ultimatum: Either I stop fooling around with using nuclear weapons to fight the war and set about using my imagination (which they respected considerably) to concoct non-nuclear schemes, or I would be asked to leave. Had I left, no defense organization would have touched me with a 10 foot pole. My retirement would have come about right there and then. In my own defiant way I was tempted to tell them where to go, but at this point I had three very young kids to feed. As rambunctiously as I've behaved during my professional life, there were a few, precious few, times when I decided discretion was the better part of valor. This was one of them. I gave up nuclear weapons and worked on unconventional conventional schemes for dealing with the Viet Cong guerrillas. Some of them today could be put to very good use in dealing with the drug trafficking across the U.S.-Mexican border without having to maim or kill the traffickers, who might be kids or women. (I'll be discussing this later on.) But I'm digressing. Back to the Bomb.

"Sam, you've come up with a tremendous idea. I wish I could hear the rest of your briefing, but I've got to dash off." **Gen. Harold Watson, USAF**

Does the name sound familiar to you? It should, for this was the Col. Hal Watson who seven or eight years earlier had directed the NATO tactical nuclear study in which I participated, until I had my fill of their wanton disregard for the wanton devastation, once again, of a continent that so recently had been wantonly devastated with conventional weaponry. Now he was a major general in the Pentagon and he seemed to be lapping up the idea of a truly discriminate nuclear weapon — the neutron bomb. I was flabbergasted and should have been a bit suspicious, but he was my friend and it would have been unfair to doubt his praise.

Dash off he did, right to the Air Force Chief of Staff's office where he demanded to see the Chief on an urgent basis, so urgent he was let right in. He proceeded to tell the Chief of an amazing new weapon that could irradiate with neutrons the crew of an enemy submarine at a great distance from the burst and send all these poor souls down to Davy Jones' Locker. Needless to say, if we could do that to the Russian subs, the Russians could do the same thing to us and that would be the end of the U.S. submarine navy. Meaning, of course, the Air Force could now take over the Navy's submarine roles. The Chief fell for it and for a brief period my name was mud with the Navy, who until then had been the sole supporter of the neutron bomb in the Pentagon. I was really angry with Watson, even though he was my friend, and had to do a lot of explaining to undo the damage he had done, including to my reputation.

As for the facts of the matter, the range of effectiveness of the neutrons from an underwater burst against an underwater target can be measured in terms of yards. The shock wave produced by the burst will reach out vastly farther to

disable the sub. But Hal had been listening just about as closely as Ambassador Murphy and had little interest in getting it straight. He heard what he wanted to hear, even though he never heard it. But what the hell, he claimed to like the Bomb. I should have been grateful.

“ .” **Gen. Curtis LeMay, Vice Chief of Staff, USAF**

If you're wondering what's between the quotes, it's not deleted expletives. It's absolutely nothing, which is what LeMay said when I briefed him on the neutron bomb. You already know he was determined not to like it, for all the reasons I've given. So why would a guy whose time was so valuable be wasting it on a briefing than ran against the very grain of his beliefs? It didn't make any sense, but maybe it did.

By this time, when I briefed LeMay, the neutron bomb was spreading around Washington, and the media as well, like wildfire. It was beginning to look like the government was taking it seriously enough to possibly develop and produce the damned thing. This implied putting a major effort into preparing for battlefield nuclear war, rather than quickly settling everything with SAC. This was still unacceptable to LeMay. However, as a military commander, perhaps the best the Air Force ever had, he understood that to beat the enemy you first have to know who he is. He decided he'd better find out what the Bomb was all about straight from the horse's mouth and decided to hear me out.

For an hour or so, he sat at his desk, cigar clenched between his teeth, not saying a goddamned thing. I found this more than a bit unnerving — no questions, no comments, not even any grunts, nothing. I would have been far more comfortable briefing Poe's raven who at least on occasion would have said "Nevermore"; and I would have spent the rest of my life wondering what he meant. Or maybe, like the rabbi from the Lithuanian village, he might have meant it, whatever that meant, or maybe not; but he might at least said something.

When I finally finished, I stood there waiting — for a thank you, a grunt signifying something, a nod signifying something, anything. Nothing. He remained sitting there, cigar between his teeth. I thanked him, collected my briefing charts and walked out of his office. No sooner did I leave when he went into high gear trying to kill me off. Which was perhaps the greatest compliment I had received to date, for he now understood this was something not to be taken lightly. Enough damage to SAC's dominance had been done already and he was determined to minimize any more that might occur.

He let it be known that it would be appreciated were I pulled off my crusade and assigned other work, like maybe the kind of strategic bombing work I had done ten years earlier that pleased him so much. It was too late for that, the Pentagon had its own Freedom of Information Act and RAND was powerless to prevent me from giving further briefings. Having lost that one, LeMay now had me informed that I was not to give any further briefings outside the Defense Department. I was not too happy about this, but I acceded, for the reason just given: I had a family to feed.

So be it. I continued my rounds in the Pentagon, briefing various agencies and each time discovered an Air Force colonel, a friend of mine who worked in nuclear planning, was in the audience. Finally, my curiosity got the better of me and one day, after I had finished the ninth or tenth briefing he had attended, I

walked up to him and said “Bob, I’ve got a suggestion. You’ve heard this thing so goddamned many times, the next time why don’t you give it?” Poor Colonel Algermissen turned red and felt obliged to tell me he had been told by LeMay to check on my activities to make sure I wasn’t getting out of line and saying something that went too much against the Air Force party line — spelled SAC. Which I did every time I got up to speak. As much as I feared losing my income, I wasn’t about to lose my integrity and say something I didn’t think was true.

“If we only had these to use at Dien Bien Phu!” **Adm. Arthur Radford, Chairman, Joint Chiefs of Staff**

This was in 1959 and Admiral Radford was one of the Eisenhower team who was having a change of mind. He now felt that the next time the commies acted up someplace other than Europe, we shouldn’t automatically nuke the Soviet Union or Red China with hydrogen bombs. He had become receptive to using battlefield nuclear weapons in these limited wars. After our humiliation in Korea, where we won nothing and lost our self respect, plus a lot of soldiers and money, and then the French humiliation in Vietnam, he began pulling away from the Eisenhower doctrine, which he had been instrumental in helping formulate.

During the French involvement in Indochina, whose death knell was sounded when they lost a pivotal battle against Ho Chi Minh at Dien Bien Phu, Radford had been dispatched to Europe to sound out the British on our using nuclear weapons to bail out the French. He was turned down flat. Maybe just as well, for the kinds of battlefield nukes we had in those days were the product of Hal Watson’s study in Europe and God only knows what damage we would have done to Vietnam if we used these weapons to stave off the commies. Radford knew this, but still was willing to use them. So you can imagine his reaction when I briefed him and the Secretary of Defense on the Bomb. Equally impressed was the Secretary, Thomas Gates. However, not being in uniform, he was under different political wrappings and chose to keep his mouth shut. (After he left the Pentagon, Gates did tell a friend of mine my briefing was the most impressive he had heard and wished we would develop the Bomb, which wasn’t possible at that time because of White House politics.)

At this briefing, which was arranged for by the Navy, and I’m sure with the concurrence of Radford who technically as Chairman of the Chiefs was supposed to be neutral, was a young Navy captain, an acquaintance of mine, who was Eisenhower’s naval aide. Since it was his business to tell Ike what was going on in the Navy, he sort of qualified as being in the employ of the Pentagon, who paid him, and this qualified him to attend the briefing. As I’m sure you’ve just surmised, this was a setup to get me out of the Pentagon and sure enough, no sooner was my briefing over when Pete Aurand came up to me, took me by the arm and said “Come with me.” Meaning we were going to the White House.

I stood there paralyzed, trying to tell him I was forbidden by the Air Force and RAND to cross the Potomac, but he was insistent. At this point, one of RAND’s vice presidents, who had invited himself to the briefing, replacing Colonel Algermissen in checking on my minding my Ps and Qs in not being too uncharitable to the Air Force dogma, came up and grabbed me by the other arm, telling me I wasn’t to go anywhere. Whereupon Pete, whose father had

been an Army general who knew Eisenhower from the good old days, which explained Pete's White House assignment, said "Wait a minute" and walked into Gates' office like he owned the place, while the RAND VP dashed to a phone to tell the Air Force what was going on. I remained standing there, still paralyzed.

After a while, Pete comes out of Gates' office just as the RAND VP got off the phone and informed him that the Secretary (who previously had been Secretary of the Navy; getting the idea this was a Navy plot?) thought it was okay for me to go over to the White House. When I got there, Ike's son, John, who was an assistant to his dad, was waiting for me down in the war room in the White House basement, where the President was supposed to preside should a nuclear war break out. Major Eisenhower listened intently and when I was through asked me if I would please remain there for a few minutes while he attended to something or another. When he returned he told me he had gone to the Oval Office to ask his dad to hear me out, but that his dad wasn't in. He was out putting golf balls on the lawn and when he was putting nothing short of nuclear attack was sufficient cause to disturb him.

Had I briefed Ike at that time, my guess is that despite the pressures that were building up in the Pentagon and Congress to develop the Bomb, he would have turned it down; preferring, I'm inferring, to slaughter a hundred million Russians with H-bombs and having our affections reciprocated, rather than discriminately defending an ally. I know I'm being scurrilous in saying this, but I'm trying to be logical. Which is no way to deal with presidents or, for that matter, my wife. I'm also being more than a bit shameful because most Americans were on Ike's side in those days, trusting that a guy smart enough to beat the Nazis and bring the Korean war to an end was wise enough to prevent nuclear war by threatening the most barbarous reprisal in history should the commies try any of their tricks again as they had done in Korea and Indochina. Now maybe he was right. Who knows? The only thing we do know is that his Massive Retaliation policy seemed to work, although we'll never know how close it came to not working. However, had he been put to the test, as Lyndon Johnson was in Vietnam, and had his bluff (I hate to think he really meant it) called, I for one would have rated him with Genghis Khan if he had followed through on his pledge, and easily the most despicable president in American history, as nice a guy as he was. Everybody liked Ike, so did I. Who was I to look down my nose so imperiously on such a likable guy and my fellow Americans? It was a bit shameful.

A couple of years later I went off to Gettysburg PA, where Ike had retired to breed cattle and write his memoirs. His former nuclear advisor, Lewis Strauss, had arranged for me to give him the briefing. He was as nice a guy as I've met, especially so to me because of his choice use of barracks language words I had come to love. He listened very attentively and asked a lot of really good questions. (It's hard to imagine a five-star general with all that experience asking a lot of bad questions.) When I had finished, he complimented me for devising such a uniquely different weapon and had no disagreement with its technical virtues. (Had I been describing a new conventional weapon with the neutron bomb's effectiveness and discrimination, he would have been in high heaven, along with everyone else.) Then he proceeded to tell me he hadn't changed his mind in the slightest. As he explained it to me, if a war was at hand of a magnitude that called for using battlefield nuclear weapons to win it, at the

same time he thought we ought to release the whole kit and caboodle and unleash our thermonuclear stockpile against the cities of the bad guys who had started or instigated the war and were actively supporting the enemy, although not necessarily with troops.

Strauss was crestfallen, expecting his former boss and good friend to see the light of day and now that he wasn't a captive of the System, speak favorably of the Bomb. Some guys die hard, some never do. Ike, I'm afraid was a real diehard and for the rest of his life never changed one bit. Shame on him, you might argue, for if you thought these Massive Retaliation policies were dangerous enough in his second term, when the Russian H-bomb stockpile was increasing by leaps and bound in numbers and the size of their bangs, a thousand times or so greater than their first atomic explosion, when he died in 1969 the Soviets had substantially surpassed us in strategic capabilities and the gap was still growing. This isn't to say his successors' policies made any more sense than his. Theoretically, they seemed to; actually they were equally irrational, plus being vastly more expensive. In this sense, not only do I still like Ike, while I've had a strong dislike for all his successors, but I apologize for the unkind cuts I've just taken at him.

As we were leaving, his son John, still an aide to his father, asked me how I had made out. I told him. He didn't say anything but he seemed decidedly unhappy.

"This is the most significant breakthrough since the H-bomb." **Gen. Bernard Schriever, USAF**

Needless to say, one of the first people I briefed on the neutron bomb was Bennie. He was entranced beyond compare and supported me to the hilt, knowing full well that LeMay and the powers that be in the Air Force didn't. But since when did Bennie ever kowtow to anyone's party line when he felt something was important enough to push for? At every opportunity he would bring me together with important people he knew, and he knew a lot of important people because of his job, which at this point was running the Air Force's research and development programs, having an enormous bankroll that many important people were attracted to, in addition to their country's security. Due to his tremendous reputation for developing the ICBM, Bennie was on his way up to the top of the Air Force ladder and few doubted he would become Chief of Staff, and maybe even JCS Chairman if circumstances permitted. He had any number of powerful supporters in Congress, including his fellow Texan Lyndon Johnson, who thought the sun rose and set with Bennie. Which reminds me of a story involving Bennie and Johnson.

Sometime during the early 1960s when Johnson was Vice President and hoping to succeed his boss, he decided to make a junket around his home state to make a few speeches, kiss a few babies and prop up his political support. To help prop it up, he invited Bennie to accompany him. As you might guess, by then Bennie had become a real hero in Texas and had officially been declared one by the state legislature. It went without saying that having Bennie at his side would be a big boost to Lyndon's reception around the state. Bennie's home town was San Antonio and naturally it was on the itinerary.

So one day during the tour a caravan of cars, one of them containing Bennie and Lyndon in the back seat of a convertible, drives into the outskirts of town. There were scads of people lining the road and welcome banners strung

between telephone poles. The folks were all cheering and Johnson was beaming until he noticed what was on the banners: "Welcome General Schriever and Vice President Johnson." Poor Lyndon was devastated, but he managed to maintain a phony smile. Poor Bennie, who knew Lyndon pretty well and was aware of his ego and testiness, and frequent nastiness, was squirming in embarrassment. He didn't know what to do except sweat it out and hope Lyndon wouldn't hold it too much against him. Maybe he did.

During the swing around the state, Johnson invited Bennie to spend a couple of days relaxing at his ranch, drinking whiskey and branch water and eating ribs and chili and all that stuff good Texans are supposed to do. One evening, after whatever number of whiskies and branch water, Johnson was far from relaxed and far from mellow. He complained bitterly about the wretched treatment he was getting from the Kennedy coterie and allowed he might not be able to tolerate another four years of that. "Bennie", he said, pointing to some acreage in the distance, "if I call it quits I'd like to sell you that land and we'll be neighbors and do things together." Bennie was really squirming, for at this point he was a fair haired boy with the Kennedy people, except for McNamara with whom he was clashing over development policies. The Beltway bookies had him odds on to be the next Chief of Staff and he already was making plans on what he would do to shape up the Air Force, which needed a lot of shaping up after so many years of being dominated by SAC and LeMay. Without explaining why, he told Johnson he greatly appreciated his warm offer, but thanks but no thanks. He liked being in uniform.

Not too long after that, Kennedy was assassinated and Johnson became president; not too long after that Bennie was forced into early retirement by McNamara who Johnson didn't have enough sense to fire; and not too long after that Johnson was forced into early retirement, in no small way due to McNamara's conduct of the Vietnam war. Had things worked out differently and Bennie had stayed on and become Chief, after McNamara was fired, his personal friendship with Johnson might have given him entree to the President to give him some sensible advice on how to win the war, which would have involved using discriminate nuclear weapons. Maybe Johnson, despite the enormous political obstacles, might have listened and done something about it — and saved his presidency. My guess is that the American people would have preferred victory, even if it took nuclear weapons to get it, rather than defeat and humiliation. And Johnson, after serving another term, could have gotten on his horse and headed gloriously out of Washington and into the Texas sunset and his beloved ranch, without Bennie who will only stop his activities when he stops breathing. But we'll never know.

In 1964, Bennie had directed and completed a massive study on the future of the Air Force, particularly in regard to what kinds of weapons ought to be developed. Needless to say, with the Vietnam war beginning to expand and the Korean debacle not forgotten, major emphasis was put on the types of weapons that could most effectively be applied to these limited wars around the world. Bennie had high hopes that this study, the most intellectually honest and technically elegant I ever saw come out of the U.S. military, would achieve such recognition as to practically ensure his promotion to Chief of Staff.

I was assigned to the study as a special assistant to Bennie, particularly regarding nuclear weapon matters. Needless to say, I advised him to put emphasis on low-yield discriminate battlefield nuclear weapons and, exploiting

advanced delivery system technology, stress the need for aircraft that could best survive in a nuclear environment, which meant accelerating the development of vertical takeoff and landing fighters which were of highly limited effectiveness with conventional ordnance but tremendously effective with nuclear ordnance. Since he was the guy who many years earlier had convinced me of the need to do this, he took my advice very seriously. Practically all his other advisors were pressing him to ignore my advice; the reason being that McNamara and Co. would take a very dim view of such recommendations and Bennie's future would be equally dim.

Bennie chose to take my side. As a consequence, in no small way were his chances wrecked. So incensed was McNamara when he saw Bennie's personal summary report — which I had helped write and which recommended stockpiling neutron bombs — that he forbid its distribution. Even Bennie was forbidden to keep a copy, although of course he did but didn't tell anyone at the time — not even myself, not that it was any of my business. He was long retired when he sheepishly admitted to disobeying orders; good soldiers obey orders, except Bennie was not a particularly good soldier. As for his future in the Air Force, with that report it went out the window and a couple of years later he retired.

As for President Johnson, who I'm sure must have known about Bennie's differences with McNamara, whom, Senator Dodd once told me, Johnson personally despised and would get rid of him at first opportunity, he never lifted a finger to support his old pal and fellow Texan, even when a number of key Democratic senators expressed their dismay that Bennie was leaving the service. Why? I don't know. Maybe it had to do with the banners outside San Antonio, although I'd like to think that no American president could be that petty. If I were to guess, though, I would say it had to do with the fact that politically Johnson had no choice but to keep guys like McNamara who were part of the Kennedy inner circle. You don't go killing off the intimates of an assassinated president, even when it's becoming clear they're killing you off.

I guess it's true that the neutron bomb does destroy people and preserve buildings. It sure helped destroy Bennie Schriever (and me too for that matter), while the McNamara Pentagon remained intact to wreck the country.

"If the Russians used this weapon (the neutron bomb) against us, we would hit them with everything we had." **McGeorge Bundy, National Security Advisor to President Kennedy**

In 1961, an acquaintance of Bundy had persuaded him to hear me out on the neutron bomb. Off I went to the White House and into his office. He was one rude cocky guy, not even getting up to shake hands (Dwight Eisenhower did when I walked into his office); instead letting me know he only had a few minutes and there was no point in my putting up my briefing charts. Why didn't I just summarize it as quickly as possible.

No sooner did I begin when he asked me a question that only could be answered by displaying one of the charts, which I told him. "Okay, put up the chart.", he responded. About an hour later, I had given him the entire briefing, using every chart, leaving me feeling pretty smug I had made an impression on him. Maybe I did, but in no way had I changed his mind which had been made up years before I walked into the room. He didn't think we should use battlefield nuclear weapons to stop the commie armies; this could and should be

done with conventional weapons only. Then I allowed that the Soviets might be developing the neutron bomb (they already had started but it would be a cold day in hell before the CIA would admit to something like this) and what if they were to use it against us and we had none of our own to respond with? His response is quoted above. Which led to my querying him: “On the soil of our allies?” He didn’t choose to respond, except to say that time had run out and he had to get back to his duties.

Needless to say, I wasn’t impressed with him. Maybe he wasn’t impressed with me either, but he took an hour or so out of his valuable time to be unimpressed with me. One way or another though, there was no way for him to give an honest answer, for had he done so he would have been admitting that his boss’s policies on nuclear weapons were pretty flawed and take the chance that I might relate our get-together to someone else, who would relate it to someone else, who would relate it to someone in the media, and there would be hell to pay.

“This is a very important development and I think we should proceed with it as expeditiously as possible. I have a favor to ask. If you become aware of anything that’s holding up this development, would you please contact my office and make an appointment to see me and tell me what the problem is.”
Gen. Maxwell Taylor, Special Assistant to President Kennedy on defense matters.

This was right around the time I had gotten together with Bundy. Taylor, who had an office just a few doors away from Bundy’s, had become a very influential aide to the President. His military background was impeccable: A hero of World War II, commander of the United Nations forces in the Korean war, and finally U.S. Army Chief of Staff, from which he resigned and retired early over a dispute with the Eisenhower Massive Retaliation (with H-bombs) policy. And went over to the Democrats, joining up with the Kennedy team.

Eisenhower’s policy was “No more Koreas” by threatening to nuke the commies off the face of the earth. Taylor’s belief was that we should be able to fight a ground war on the ground by building up the Army; but unlike his administration colleagues, at least in my presence, he did not seem averse to using battlefield nuclear weapons, especially discriminate ones like the neutron bomb. Hence his request of me.

In no time at all, it became apparent that the civilian sector of the Pentagon, under McNamara (whom I had briefed and gave the same response as LeMay, he didn’t say a goddamned thing; when I was through he just got up and walked out — sans cigar) was out not only to do in the neutron bomb, but all battlefield nuclear weapons as well. In considerable dismay, I called Taylor’s executive officer, reminding him of the general’s request and trying to set up a date to see him and complain about what was going on. He promised to inform Taylor and said the general would get back to me. He never did.

For reasons that should be clear to you by now, Taylor had gotten the drift of the administration’s anti-neutron bomb attitude and wasn’t about to start rocking any boats. Maybe he should have; he was a highly respected figure and under his leadership as Army Chief of Staff he had tried his darndest to put his service on a footing where it might be able to fight a nuclear ground war. But thanks to Ike’s different opinions, he didn’t get very far. Too bad, I think. For these reasons, I feel that he was being genuine with me when he requested I

keep him up to date on the Bomb; but realities are realities and he wasn't about to buck them. His reward for going along was to be called back to active duty and made Chairman of the Joint Chiefs, and after that Ambassador to South Vietnam to help get us out of that mess. He failed, like everyone else.

On more than one occasion I've wondered if he ever had any second thoughts about not returning my call and trying to get the Bomb on track. He might have wound up an even more glorious hero, had he played a key role in helping win that war with neutron bombs. Who's to say. One thing I can assure you though, is that if he hadn't attached himself to the disastrous course we were pursuing in Vietnam, the luster on his medals from past wars would have continued to gleam. He might not have died a forgotten hero, which is what happened.

Do Americans really care how we win a war provided we win it? I doubt it. If you doubt it, take a look at H. Norman Schwartzkopf, who won a war the other side was unable or unwilling to fight, and became a great national hero, and still is. Taylor happened to be victimized, or victimized himself, into helping mastermind a war that was doomed to defeat because we lacked the will to win it and the other side refused to lose it. Nevertheless, he remains a hero in my books, although a fallen one. I'd like to think that if you're a hero and you get yourself into trouble by sticking with your beliefs, get out and continue the fight from the outside with an untarnished image, like Douglas MacArthur, who wanted to win the war in Korea. Taylor got out, for the right reasons, I think. He got back in again for the wrong reasons and went down the drain, and deserved to, in my opinion. He asked for it; he got it. So did I, for entirely different reasons. As we used to say when I was in uniform: Tough shit!

"Look, you can't go blaming me for this. I just did the analysis. The inputs were provided by the appropriate agencies. I had no business questioning them." **Col. Frank Camm, U.S. Army, assistant to the Assistant Secretary of Defense for Systems Analysis in the Pentagon on tactical nuclear matters.**

The colonel was trying to get off the hook for conducting a study, at the request of his boss (my former RAND acquaintance Alain Enthoven, believed to be the real power behind McNamara's throne), which I had just proved to his dissatisfaction was someplace between a hundred and a thousand-fold in error. The study had to do with whether to put a neutron warhead or a standard fission warhead into the Army's Lance battlefield missile, whose development was underway. The colonel had concluded that it was more "cost-effective", meaning you've got more military effectiveness per buck invested, to install a fission warhead whose bang was close to ten times that which leveled Hiroshima. (When I asked him whether he was concerned with the civilian devastation that would occur if such weapons were used to defend our allies, he said sure he was concerned, but the ground rules for the study did not include such considerations. For a moment I thought I was back in Wiesbaden working on Hal Watson's study, or that Hal had died and had been reincarnated in the form of Frank Camm.) This was his recommendation to his boss and this was the warhead that went into Lance, which had the West Germans becoming queasier and queasier.

The military expression for screaming bloody murder over some egregious decision and trying to reverse it is called a “reclama”. I told Camm I was going to try and get a reclama underway. Had his results been off by a factor of two or three-fold, I would have held my peace, albeit unhappily because of the civilian damage issue which unhappily was a non-issue. After all, as the saying goes, correctly I believe, “War is an art, not a science”, and who was I to quibble over an error like this (even though serious decisions were being made in the Pentagon on the basis of systems analyses that supposedly were far less in error.)

He smiled and informed me it was too late for that. The decision already had been made, there was no way of changing it. I refused to accept that and went off to see an old friend of mine, Johnnie Foster, who was number three guy in the Pentagon, in charge of research and development, theoretically but not actually in charge where nuclear weapon developments were involved. Here, it was Alain Enthoven and his systems analysts who ran the show. Before coming to the Pentagon, Johnnie had run the Livermore lab and under his auspices and tremendous encouragement, the neutron bomb had been developed and very, make it extremely, successfully tested. He had also given me tremendous encouragement when I was going around with my dog and pony show pushing the Bomb. There was little doubt in my mind that Johnnie would not stand for such an outrage and would go see his boss McNamara to register a reclama. I was in for more than a bit of a shock and a deep sense of betrayal, that succeeded in wrecking a friendship that went back some 15 years.

“Sam”, Johnnie told me “you don’t have to tell me what Enthoven’s people are up to. I have to live with this every day. But what can I do about it? You can’t buck Enthoven in this building. If I went to see McNamara, all he would do is tell me he didn’t ask for my advice on this matter, he asked Alain. He couldn’t care less about my advice on this matter and I’m not going to get into a hassle I can’t possibly win. I’ve tried to get the Army to put in requirements for ER weapons (ER standing for “enhanced radiation”, which later was euphemized to RB/ER, “reduced blast/enhanced radiation”, to make the warhead more palatable to those who found the sole emphasis on radiation objectionable, who saw no difference between the Bomb and its nomenclature) but they’re not interested. What do you want me to do? I’ll only get myself in trouble.”

I professed to understand what he was saying; but I really didn’t. I couldn’t. I couldn’t believe that a bias of such huge magnitude could drive key decisions, even if it did. I froze and invented some excuse to get out of his hair, he was a busy man or something like that. Although I had been dropping in to see him practically every time I was in Washington, this abruptly came to an end. I had cut him out of my pattern. Had he really deserved this?

Looking back, the answer is he really didn’t. While in the Pentagon, he had done a lot of things to keep the System honest, especially in the area of strategic nuclear arms control, where the White House, State Department and CIA had been acting atrociously, especially over the impending ABM treaty. He lost his battle, which was lost before he started to fight (the President wanted a treaty and that was that), but he fought honestly and courageously because he had some support in certain quarters of the Pentagon and Congress.

As for defending the neutron bomb, there was nobody in a position of authority in Washington who cared less at this juncture. Yet, despite his good

points, which were many indeed, on this one issue that nobody gave a damn about, I ended an old and really rewarding friendship. Chances are that sooner or later, in following the programs of the nuclear weapon labs I would have come across a gadget that displayed neutron bomb properties, made my slide rule calculations and come up with the discovery. Thanks to Johnnie, however, who opened up his laboratory to me to the fullest each time I visited, undoubtedly the discovery came considerably sooner. I'm still grateful for this, even though all the neutron bomb ever did was to cause worldwide acrimonious debate and, speaking selfishly, get me and my views some attention.

I bumped into Johnnie a few times after this miserable discussion in his office, but the strain, at least in my mind, still existed. Looking back, I should have had the sense and maturity to apologize to him for neglecting our old friendship, without mentioning why, and try to patch it up again. He probably would have been more than delighted to do so. I never did, but it's never too late to apologize, which I'm now doing for the first time. Johnnie, I'm really sorry and thoroughly ashamed of myself.

As for Alain Enthoven and his analysts, I'm reminded of a story I heard a few years ago. The Navy had conducted an analysis of its future force composition and one day an admiral went before the Joint Chiefs of Staff to brief the study. Like all such studies, thanks to the RAND Corporation and modern high-speed computers, this one was analytically replete with all conceivable relevant factors taken quantitatively into account. When the admiral had finished, an Air Force general asked him what his study results would be were the Soviet navy to sink to the bottom of the sea. Without batting an eyelash, the admiral replied "The results would be the same, we'd simply have to change the briefing charts." The story may have been spun from whole cloth, but after my experiences with Colonel Camm and Johnnie Foster it sounded plausible enough to me.

About ten years go by and thanks to the two congressmen I've mentioned the Army is now in the neutron bomb business, not very happily but orders are orders. Two warheads were under development: one (get this!) for the Lance missile, the other for an artillery piece. The Lance neutron warhead was an absolute abomination. I had argued heatedly against it at Livermore where it was being developed, but to no avail; if that's what the Army wanted, that's what it would get. If used the way the Army wanted to use it, bursting it close to the ground to make sure there would be a lot of blast (which military folks instinctively trust) besides a lot of radiation (which military folks and civilians who don't like neutron bombs, or know anything about them for that matter, instinctively distrust), it would have caused urban devastation on the scale of the Hiroshima bomb. The artillery warhead was far more reasonable and if properly burst, at an altitude of two or three thousand feet, could have drastically reduced blast damage at the surface while still having a pretty substantial radius of effectiveness against enemy troops. However, like Lance, it was meant to be burst close to the ground, meaning its radius of urban blast destruction would be close to half that of the Hiroshima bomb. So the Army decided to protect our allies with weapons that both killed people and destroyed building on a wide scale, while the world got into a frenzied debate over something else." It's a vegetable. It doesn't look like one, but it is.", Alice had told the Duchess. That's what the U.S. government let the world think.

I was asked to conduct a study on the utility of these two warheads and report my findings to the Army. Which I gladly did and when I had finished I went back to the Pentagon to report to a group of Army officers. Presiding over the meeting was guess who? Frank Camm, who was now a major general in charge of the Army's nuclear weapon activities.

When I had finished, Frank came up to me, thanked me for my endeavors and allowed the neutron bomb was one great weapon. I felt like throwing up. When he had left the room, I went up to one of his colonels, an acquaintance of mine, and asked him: "Roy, how come you're not putting a high airburst fuse on the artillery warhead (which readily could have been done, after all the first atomic bombs dropped on Japan had been fused to burst close to 2000 feet) to prevent blast damage at the surface? Roy gave a non-answer. He didn't have to explain; he knew that I knew what the honest answer would be. Had he tried to explain, his best bet would have been to quote the Duchess: "This is exactly what I want; but just in case I don't want it, here's something I don't want but really do want." If Alice had said she didn't quite understand what the Duchess was trying to tell her and the Queen were around, she would have roared "Off with her head!" As for my highly appreciated study, what a waste of time.

"Now look, I don't want to talk about tactical nuclear weapons, there's nothing we can do about them. We're going to discuss only conventional defenses."

Henry Kissinger, National Security Advisor to President Nixon.

Henry Kissinger needs no introduction, but it's possible that some of you, I hope none of you, never read his book "Nuclear Weapons and Foreign Policy" that first thrust him into national prominence. (When I say I hope none of you read it, what I mean is that if any of you did, chances are that you're already so annoyed with me over my views that you're ready to throw this book, and me, into the trash can.) A major theme of Henry's book was the need for battlefield nuclear weapons and what kind of strategy and tactics the army should have to most effectively use these weapons. But that was back in the 1950s when it was politically correct to take strong positions on the need for nuclear weapons and their use.

The above remark was made in 1969 shortly after Nixon had become President. In the interim, as I've explained, the popularity of these weapons had shrunk almost to zero and Nixon was under no political pressure to reverse this attitude. The name of the game remained trying to build up our conventional forces so we could face up to commie aggression without having to resort to nuclear weapons, which, so the theory, actually mythology, went, posed practically a certainty that this would result in the world being blown up. Accepting this dogma, even though he had mocked it before entering the government, Kissinger, in a top secret White House meeting involving some of the top national security officials in the government, insisted that tactical nuclear weapons were not to be brought up.

I might say that Kissinger, between the time he wrote his opus and when he entered the White House, had written and spoken every which way on the issue of relying on conventional weapons to keep a war non-nuclear and relying on nuclear weapons to be able to defend successfully against the commies. At one time he would be pushing for a strong conventional option, which assumed the Soviets had enough sense (as we did) not to use nuclear weapons at the onset of a war; at another time, and I'm quoting him again here, he said "Regardless of

what we may decide, the Soviets may use nuclear weapons first; in fact, if they have not lost their senses, they almost have to use nuclear weapons first.” On this occasion, however, he was only interested in talking about conventional defenses against conventional attack.

(Attending this White House meeting was Adm. Thomas Moorer, Chairman of the JCS, a friend of mine who had been one of the strongest proponents of the neutron bomb in the Pentagon. Shortly before the meeting I had dropped in to gab with Moorer and in the course of our conversation, based on the above remark by Kissinger, asked him what we would do in the way of response if indeed the Soviets were to begin the war with a surprise nuclear attack on NATO’s troops and facilities, which would wipe out the great bulk of them. Moorer, the President’s number one military advisor, thought about it for a little while and then, in a very soft voice, told me: “Nothing.”)

As for Henry’s boss, and how he might have felt about battlefield nuclear weapons now that he was President, in the summer of 1961 I was asked by Admiral Radford, now retired, to brief Nixon on the neutron bomb. This took place at a hotel in Washington where the former vice-president was staying, and took up a couple of the most fascinating hours I’ve ever spent. As a person, he was precisely the guy who emerged from the Watergate tapes: coarse, foul-mouthed to the point of obscenity; tough-minded to a degree that flew in the face of his Quaker upbringing; and, which I don’t ever recall coming out during Watergate, smoking a big, long, dark cigar. The first three qualities bothered me not a whit, since I generally behave that way around people who don’t mind; I hope you don’t. The fourth had me in high heaven, for two reasons: (1) I had been smoking big, long dark cigars for almost 20 years; and (2) This gave me the opportunity to take one out of my pocket and join him in filling the room with cancer-producing smoke.

Nixon seemed genuinely interested in the Bomb as I flipped through my charts. However, there was little dialogue between us in the way of questions and answers. Instead, he almost totally dominated the discussion by commenting on the political aspects of nuclear weapons. He really knew what the score was.

Apparently, what little I was able to say did make an impression on him. Shortly after I left his hotel suite I got a call from Radford asking me whether I was willing to help ghost an article on the neutron bomb for Nixon, who was then being syndicated around the country. Sure I was, and I sat down with one of his aides, who had been a White House speech writer under Ike, to write up the article, which of course implied that the Kennedy nuclear policies were dangerously wrong. The article never came out, nor did I ever get a thank you note from Nixon.

Now I bring up this White House meeting because at that time I was working in the Pentagon and had headed up a study, requested by Kissinger, on tactical nuclear weapons. Naturally, I put in a big plug for the neutron bomb and other discriminate weapons. To my amazement, I was able to get the concurrence of the JCS (perhaps because it was known I was friendly with Tom Moorer and the service chiefs knew of his affection for these weapons) and the study went off to the Office of the Secretary of Defense for approval before dispatching it to Kissinger’s office. The fellow designated to pass judgement on such studies was the Deputy Secretary of Defense, at that time a guy named David Packard whose views on nuclear weapons had been largely shaped by

Alain Enthoven and his cohorts from RAND and the McNamara reign. One of them, Ivan Selin, who had succeeded Enthoven to run the Systems Analysis shop in the Pentagon, was asked by Packard to review the study, which meant it was going to be rejected out of hand. Which happened and as a result Packard, without ever bothering to call me in to hear me out, disapproved of the study. However, being obliged to respond to Kissinger's request, he sent the study off to Henry, with a note saying in effect "I think it stinks but since you asked for it here it is."

Okay, so the meeting begins with Kissinger's admonition and they're discussing conventional defenses only, until the time came, as everyone knew it would, when it became clear to everyone, and had been before the meeting, there was no way, for political and economic reasons, of getting conventional forces for NATO capable of holding back the Red Army. Whereupon Kissinger now says "Well, what about tactical nuclear weapons?", violating his own marching orders. But no sooner did someone have something to say about these weapons when Kissinger cut him off and tried returning to conventional defense. This was repeated several times before the meeting finally broke up with the realization that we were stuck with an indefensible strategy for defending Europe. The conclusion reached by the group, as to what ought to be done toward getting us out of this predicament, was obvious: Do nothing. Which we continued to do until the Soviets solved the problem for us by demolishing the Warsaw Pact at a time when NATO's military insufficiency was at its greatest.

***.

"I'm almost certain the President is going to order the production of your bomb, Sam, and when he announces this we'd like to have you around."

Richard Allen, National Security Advisor to President Reagan

This remark was made in the context of offering me a job to join him as a staff member on the National Security Council, where I would be working on nuclear weapon matters. After I left his office, however, he apparently had second thoughts and I never heard from him. Looking back, just as well. In no time at all, I would have had the bureaucracy in such an uproar over my behavior that I would have been dismissed, unless I had the sense to preempt and clear out on my own volition. I'm sure Dick, who had been a good friend of mine for some 20 years at that point, and knew me well, understood this and immediately regretted having given me the offer.

It would have been nice if I had gotten the job and behaved long enough to be around when, a few months later, Reagan made his announcement to produce and deploy the neutron bomb, as farcical as it would have been, for the above-given reasons. Dick had intimated that I might get some kind of an award for inventing the Bomb, to show my grandchildren. (It's nice to daydream about something that never would have happened.) Looking back, however, at what happened to our national security under the Reagan administration, this wouldn't have been a badge of honor handed out by an honorable presidency. Far more meaningful would have been if Nixon had given me one of his cigars (and I found out it was Cuban) as a token of appreciation for my visit with him. I would have smoked it that night after dinner and thought very kindly of him. It's pretty hard to smoke a medal if it's not made of tobacco. In which case, what good is it, especially if you're being rewarded for something you tried to prevent happening in the form it did.

Speaking about Reagan, I had met him a few years earlier when I was residing in Paris. At the time he was gearing up to run for the presidency, and Dick was his national security campaign advisor. Dick had advised him to take a swing around Europe to get some foreign policy credentials under his belt. This may have been a good idea, but it wasn't appreciated by the Europeans, especially the French, who regarded him as a joke. When he arrived in Paris no official of any real importance was willing to give him the time of day, which gave the Governor plenty of spare time wondering what to do with himself. Dick, with whom I had been corresponding, told him about me and suggested meeting me to hear about the neutron bomb. Dick called me, I got on the Metro, and went off to the hotel where they were staying and spent a couple of hours with Reagan.

He was practically the direct opposite of Nixon; really warm and friendly; attentive and willing to let me do most of the talking; as genteel as they come; and, curses, a non-smoker. When we were through, I had the distinct impression he liked the Bomb, if for no other reason that Carter had so thoroughly foul up on it and was so obviously against it. As for his understanding of our nuclear policies, I had the impression that either Dick hadn't been filling him in sufficiently on these issues, or he had been filled in but didn't understand what Dick was telling him; or he really wasn't interested; or all the above.

This wasn't supposed to be in the script Dick had envisaged in inviting me to meet the Governor, but before leaving I felt compelled to give him a warning and some advice. "Governor", I told him, "I know you're running for President and I sure hope you make it. If I can help you and Dick in any way on nuclear issues just let me know. (I actually did wind up as a campaign advisor in 1980, specifically on tactical nuclear weapon issues. I might as well have been attending the above-described Kissinger conference; nobody was willing to take the political risk of using my advice.) There's one thing though I have to warn you about. Don't go getting any ideas that the people you bring in to run national security policy affairs are going to be receptive to any new ideas you may have in mind. They'll pretend to go along with you, but chances are they'll do nothing realistically to put your ideas into effect if your ideas have anything to do with changing nuclear policy. They're just not receptive to change and I know most of these guys. So does Dick. In fact, if you give any impression that your thoughts may run along the lines of mine, some of them will try to sabotage you. Even if they don't, the bureaucracy will make sure nothing of consequence happens; they don't like coping with change in this area. And this goes for the neutron bomb if you try to do something about it."

So what happened? Just about what I had warned him about. He had the political courage, or political naïveté, to order production and deployment of the neutron bomb; but you already know what he got; not bombs that killed people and saved buildings, but bombs that destroyed both, and had our NATO allies, especially the Germans climbing the wall — with good reason, I might say. Moreover, just like Jimmy Carter, he caved in under pressure from our allies, and the State Department, who feared these weapons even more than our allies, and had them stored in the U.S. where they couldn't conceivably arrive in Europe in time to be of any military good. As for nuclear arms control, I've already related the Intermediate Range Nuclear Forces farce, where we destroyed all our weapons and never knew for sure how many the Soviets had

destroyed, if any ever existed in the first place. And so on. So much for my warnings, except I suspect he never took me seriously, probably because Dick Allen, who really knew the political lay of the land in Washington, had advised him not to.

As to how much Reagan's national security policy influenced our national security, I don't know. What I do know is that in essence it was little different from the policy first established by Kennedy and continued through the Johnson, Nixon, Ford, and Carter years, whose implementation was nothing to brag about. However, if the policy was the same in substance, in terms of dollars and cents, Reagan's determination to build up our conventional forces (he failed miserably in the nuclear area with such fiascoes as the MX missile and the Stealth bomber, let alone the neutron bomb which cost peanuts) cost the country a fortune, well over a trillion dollars that could have been better misspent by Congress on domestic programs that at least had some tangible value, like putting people to work on pork barrel projects or increased Medicare and Social Security payments for people who didn't need them.

I may have disagreed with the barbarity of the Eisenhower policy, but it seemed to work and it was cheap. The Reagan policy also seemed to work; but in no small way did it contribute to the recession we've been going through, to say nothing of our national debt going out of sight and our budget reaching all-time records of imbalance. Which suggests a new Murphy's Law that says "If you don't know what you're doing, don't do it; and if you do it anyway, do it as cheaply as possible and hope it works." If it doesn't, you'll never know why.

"Sam, I've been asked by Harold Brown to have your clearances suspended while you're living in France. I think it's a dirty deal, but he's the Secretary of Defense and if that is what he wants that's what I'm supposed to do. So would you please sign a release form agreeing to this and I can assure you that when you come back home your clearances will be reinstated." James Wade, Assistant to the Secretary of Defense for nuclear weapon matters.

I won't say that Wade was a friend of mine. In fact, I always had regarded him as a scummy Pentagon bureaucrat; but I had known him for many years and on a professional level had a fair amount of respect for him. And, so I thought, vice versa. But I couldn't imagine him looking me in the eye and telling me this, knowing full well I'd never get my clearances back and that would be the end of me, unless I had ambitions to become a crossing guard at some local elementary school, which probably would have been more rewarding (I really like little tykes, even the obnoxious ones who remind me of mine when they were of that age). So I told him "Look, if you guys want to withdraw my clearances, there's nothing I can do to stop you; but I'll be damned if I'm going to sign on the dotted line. If that's what you want to do, go ahead; and the first thing I'm going to do is to tell someone in the media that the guy who invented the neutron bomb has been put out to pasture." (At this point, 1978, I had achieved international notoriety and although I was not universally beloved, there were quite a few people who thought I was a bit of a national hero.) With that, he backed away.

Now maybe you're wondering why in heavens name would Harold Brown, the Secretary of Defense, with a million and one worries on his mind, bother to stoop so low as to remove the clearances of an old and good friend, and for what reasons. (I first met Harold in 1952 when the Livermore lab was founded

and worked very closely with him for almost ten years before he went to the Pentagon in 1961 to head up research and development under McNamara. I remember, after my promotional efforts had succeeded in giving top priority to the neutron bomb and a big boost in morale to his lab, which now had something really important to work on, Harold, who was now lab director, expressing his great gratitude to me for what I had done for his lab. For this and quite a few other reasons, why in heavens name would Harold want to do this to his old pal Sam, to whom he gave no small amount of credit for steering him into a very successful first date with the gal he was to marry.

Well, the fact is that I can't answer this question. However, my best guess is that Harold didn't have a thing to do with Wade's request. If Harold had really had wanted to do this to me, I'd like to believe he would have found the time to call me into his office and explain what was going on and why he wanted this done. I find it impossible to believe he would have treated an old friend in any other way. My opinion, based on my opinion of Wade, plus a confidence expressed by a friend of mine who worked for Wade, is that this was all Wade's doing. Why? Brace yourself for a long answer involving the kind of hanky panky the U.S. government can go through when for its own good or bad reasons it feels obliged to sidestep its declaratory policy and do things it vowed it never would — like selling arms to the Ayatollah to get money for the Contras to be able to overthrow the commies in Nicaragua.

In 1977, despite all the fame and acclaim I was getting for having invented the neutron bomb, I was so fed up to my ears with doing work under policy constraints I didn't believe in, I decided I could use a sabbatical for a couple of years. Then I would go on back to the old grind, hoping maybe things had changed for the better in the interim. Some years earlier, I had made the acquaintance of a French army colonel, Marc Geneste, who was perhaps the foremost proponent of battlefield nuclear weapons in France and who was a military planner for the French Atomic Energy Commission. When Marc found out I was the guy who invented the neutron bomb, he was excited beyond imagination, and we developed a friendship, mainly through correspondence and occasionally when we would both be at some conference.

One day I sat down and wrote to Marc, telling him of my frustrations and wondering whether there was any institute in France that was heavy on foreign policy, generally shared my views on military matters and might be interested in my joining them as a resident "scholar" (a non-description of me if there ever was one). He wrote back, telling me that he actually belonged to such an institute, in Paris. He was sure they would be delighted to have me join them. They were, and a few months later Marc called me to say he had worked out an agreement where, to earn my keep, I would write a book on NATO defense — no holds barred, unlike my situation in the U.S. A few months later, the Cohen family arrived in Paris.

Marc had informed me the institute, who was bursting with pride over such an eminent figure joining them, would line up an elegant apartment for us and could hardly wait to introduce me around French strategic circles (other institutes, universities, government agencies, wherever) who shared my interests in nuclear weapon matters. It didn't quite work out that way. The promised apartment, elegant indeed, was not available. With no help from the institute, and not speaking the language, we had to forage around for weeks

before we could find a respectable place. As for meeting up with all the Frenchmen and discussing grand strategy, no one was willing to meet me, not even anyone at a university, the citadel of intellectual freedom in France. Had it not been for the fact that I had known a retired French general who lived in Paris, Pierre Gallois who had been an intimate of Charles de Gaulle and under de Gaulle was mainly responsible for developing France's nuclear strategy and personally and openly despised the current president, Giscard D'Estaing, I would have been an extremely lonely person. In the meantime, the institute offered no assistance in getting our kids into acceptable schools and it took weeks for my wife to get them located. We were not very happy and I was puzzled, frustrated and hopping mad the way things had turned out. It was obvious that the French government was determined to make me a non-person, to the point of having the institute, which was indirectly funded by the government, establish a secret bank account for me, to ensure my identity was kept secret.

Now if you're typical of a lot of American tourists who come to Paris, usually with a chip on their shoulder against the French based on stories they've picked up from friends who visited earlier and didn't like the French attitude toward Americans, you'd be telling yourself: "Figures. Those damned Frogs always have been that way and looked down their noses at Americans." That simply wasn't true. Although they hadn't been of much help toward getting us established, the members of the institute were a grand bunch of guys. And all the French butchers, bakers and candlestick makers I met were as nice as any Americans I've ever met, even if we couldn't speak with each other. But everyone and anyone in or tied in with the French government wouldn't have anything to do with me, and when I called a few of them I had met over the years in the U.S., they were most apologetic, but just didn't have the time at the time. They assured me they'd get back to me, but never did.

Finally, it began to sink into my thick skull that I really wasn't wanted in Paris. Were I to back out of my contract and go home, no one could care less, even the institute that so eagerly had looked forward to my arrival. Something had happened between the time I signed the contract and the time I arrived to make for a very unwelcome arrival. I thought I deserved an explanation and got hold of Marc, demanding to know what was going on. He was my friend, he had arranged for my coming over, and he owed me an explanation. Which he gave to me.

France had been working on the neutron bomb for some time, but for political reasons didn't want word to get out what they were up to. When the French government found out I was coming to Paris, it informed the institute that it would be appreciated if they went back on their offer, and if that wasn't possible, to do nothing to make life comfortable for the Cohen family. Hopefully, we would turn around in disgust and return to Los Angeles. As for all those savants at the other institutes and universities, who were heavily subsidized by the government, they had been informed to have nothing to do with me. Marc professed to be heartbroken over this, and apologized for his government's behavior, but nevertheless admitted that's the way it was. (As an American reporter for the International Herald Tribune in Paris explained it to me: "Sam, you're living here in a democracy that's actually a constitutional monarchy. You get too far out of hand in trying to buck the system and they'll

kick you out of the country without giving you any reason whatsoever. Try complaining to the U.S. Embassy and see how far you get.”)

Marc went on to tell me that the institute, when it invited me over and gave me a grant to write a book, had no idea I would be *persona non grata*. *Au contraire*, they were bursting with pride over being able to parade the Father of the Neutron Bomb around Parisian strategic circles and the media, figuring this would really enhance their reputation. Which hadn’t been very much at the time; so small was their budget that my arrival practically cut it in half. However, said Marc, that’s the way it was, except that it wasn’t all that simple as I’ll explain shortly. But that’s the way it was.

“Look,” said Marc, “you’ve got a contract to write a book and you refuse to let us back out of it. (I had threatened to file suit against the institute if they tried to back out, which would have brought about a certain amount of publicity they, or the French government, didn’t care to see come about.) However, the contract doesn’t say you have to write it in Paris, it says you can do your writing anyplace in France provided every once in a while you show up for a seminar at the institute (which was pointless because I didn’t understand French and many of them didn’t understand English). So why don’t you move south to some nice spot where the weather is better and things are cheaper, to do your writing. We’ll arrange to get your money off to you and every once in a while you can come to Paris for a day when the institute is meeting (they rarely met) to make things look on the up and up. In fact, you can go down there and do whatever you want for two years. If you want to write the book (which I did), fine; if you don’t feel like it or can’t finish it in time before you leave to go back home, consider it to be the best all-expenses paid vacation you’ll ever have. However, if you stay in Paris, sooner or later the press is going to get wind of it and get suspicious that you’re here to help us develop the neutron bomb. For political reasons, the government doesn’t want that to happen.”

I turned his magnanimous offer down flat and insisted on remaining in Paris, lonely as I was and leading an intellectually barren existence, to write the book. I repeated my threat that a contract was a contract and that I expected the institute to honor its obligation while I honored mine, and assured him there would be problems if things worked out otherwise. I was getting, in effect, the same treatment I was to get from Jim Wade in the Pentagon a while later, and fighting back in the same way. With that, Marc backed away.

Using a 200-year-old kitchen table my wife had bought as a desk, I settled down to writing the book, in the kitchen area. In the meantime, since I liked doing this, I tried getting articles out, through an American journalist acquaintance of mine who lived next door to me when we first came to Paris, in French newspapers and magazines, having to do with NATO and related matters. No respectable journal would accept anything I submitted. On the other hand, I was able to get a couple of articles out in the U.S. owned Herald Tribune, who in my byline refused to say I was residing in Paris. So much for my first year and a half in France; a pretty lonely life, but at least I had my book to write which kept me as busy as I wanted to be.

Although I was effectively isolated from the French, there were a few Americans I got to know, mainly from the U.S. Embassy. They were military attaches I met through mutual acquaintances in the U.S. Also, every once in a while, someone I had worked with professionally in the U.S. would be in Paris for one reason or another and would look me up. Although I had no qualms

over telling them what Geneste had told me about the French neutron bomb program and the isolation I was suffering through, with one exception these guys, who were or had been in the nuclear weapons business, had no comments to make, which had me feeling maybe they knew more about the French than I did. Then there was this one fellow who was alive when I lunched with him a couple of times, but apart from that didn't seem to exist. Our relationship was "Don't call me, I'll call you" and when I tried calling him he was never there. Finally, thank God, before leaving for France I had been on a Defense Department panel that met in Washington every few months, which gave me reason to get back on U.S. terra firma every once in a while, which felt very good.

In meeting up with these guys from the embassy, visitors from the U.S., and the guy who wasn't alive, it gradually began to dawn on me that not only was the U.S. fully aware of the French neutron bomb program but it had been helping them and was continuing to do so. From a policy standpoint this was at least a serious infraction of declared U.S. foreign policy as Reagan selling arms to the Ayatollah, for the U.S. had been at swordpoints with the French over their nuclear weapons program since its inception; and even though it wasn't against the letter of the law to help them with their program it certainly was a gross violation of its spirit. As you might recall, Charles de Gaulle, when President, had pulled France out of NATO militarily and let it be known that it would use its nuclear weapons as it pretty well pleased. Which had us climbing the wall for fear that some headstrong French president, such as de Gaulle, operating independently of NATO nuclear policy constraints, which the French despised, could start World War III. In this vein, it seemed inconceivable we would lift a finger to help France develop nuclear weapons.

I became quite friendly with our naval attaché in Paris, and when I told him of my role in the neutron bomb and that the French were developing one of their own, which I'm sure he knew, he figured it would be good diplomacy to introduce me to some of his French military friends, figuring they would be delighted to chat with me. So he arranged for lunch with some admiral who was principle nuclear weapons advisor to the President. For the sake of keeping up good relations with the U.S. Embassy, the admiral could hardly turn down the invitation, but not once did he bring up the neutron bomb in our conversation. Which figured. Lunch over, he allowed he would like to see a good deal more of me. I never saw him again.

One of the visitors I had worked closely with back home was a recently retired Army colonel who when on active duty had been up to his ears in nuclear weapon policy matters. Earlier in his career he had attended a French military college in Paris, where he made a number of close friends with whom he maintained continued contact, including frequent visits to France. On one of his visits he found out I was living in Paris (or did he already know?) and looked me up. Naturally, he asked what I was up to (which I suspect he knew) and how I was making out (which I also suspect he knew). Naturally, I poured out all my woes to him; and for whatever his reasons may have been — like he regarded me as an old friend and comrade in nuclear arms; or maybe because he was asked to do this — he told me that he long had known about the French neutron bomb program and explained that not only did the U.S. have no objections to this, to the contrary it was actively assisting the French. Those in the government, especially Jim Wade, who were in on this were fearful that I

might catch on to this while in France and wanted me home in the worst way, as soon as possible, before I found out. Which explained the rude behavior of the French and Wade's ploy to get me back by threatening to do away with my career by withdrawing my security clearances.

Suddenly, the picture became very clear as to what my problems were all about. Being a curious person, I began looking for clues to verify what my American friend had told me; not for the purpose of letting the cat out of the bag in anger over the treatment I had been getting, although it would have been perfectly legal, in terms of U.S. security regulations, for me to do this. Rather it was to piece together what was emerging as a really intriguing story, for my own self-satisfaction. Not only did I genuinely like the French and France, despite the scummy treatment I had received from their government; but I thought that the U.S. government (which had been treating me in a pretty shabby way, as I saw it) helping them on the Bomb was a great idea. For the first time in God only knows how long, I found myself siding with my country on its nuclear policy, which I had never thought would happen.

Now if I thought it was great for us to help them, never in my wildest dreams did I ever think of helping them with their warhead design problems. That would have been a terrible breach of security, tantamount to Jonathan Pollard giving secrets to Israel; and had I been caught pulling a stunt like that, I should have been shot. On the other hand, the general principles of how a good neutron bomb ought to be designed are not secret and I gladly would have given the French my design preferences if they asked for them. Which later on they did, unquestionably with the full permission and even blessings of the U.S., and I spent a couple of hours with their top weapon designers, including the chief designer of their neutron bomb, who happened to be Jewish (Thank God the Fathers, at least the ones I know of, of all these bombs have been Jewish; can you imagine how much more insidious these weapons, especially the neutron bomb, would have been were they parented by Jewish mothers?) discussing the matter. They really asked extremely good questions, some so specific and detailed as to indicate that we, the Livermore lab, had been in contact with them. Which told me that the folks in Washington, especially Wade, who I learned had been making frequent visits to the French AEC and was pretty chummy with the director of its military applications section, had given up on trying to force me out of the act. Without letting me know, when did they ever let me know anything except how unhappy they were with me, they had decided to have me join them, unofficially, by allowing me to interact with the French neutron bomb designers. My book writing was still going on apace, but my life was becoming more and more interesting.

As for the guy who was alive enough to lunch with me, but apart from that didn't seem to exist, this was an eerie experience which to this day I've been unable to fathom. The first of the two lunches we had came about ostensibly as a result of an article I had written in the Herald Tribune, where my byline had me residing in the U.S. It had to do with the neutron bomb and whether the Russians had it — they did. The day after the article came out, I got a call from this guy saying he had found the article very interesting and wanted to get together. Let's have lunch. He suggested a place a few doors down the street from my apartment. Curious, I thought, he should know my phone number and where I lived when, according to the Trib article, I didn't live there let alone

have a phone number there. But then, I thought; he sounded very pleasant and he thought enough of my article to want to meet me. So why not.

It was a very pleasant lunch, although he seemed very guarded and kind of nervous, keeping his voice down to a level where I had to strain to hear him. (It's bad enough hearing anybody who speaks in a normal tone in an average French restaurant.) He identified himself as representing an investment company in Boston (no card, though, which the French love to pass out when meeting someone for the first time) and claimed to be interested in some aspect of nuclear power I might know something about. I didn't. He then asked me what I was up to in France. I gave him a straightforward answer: I was writing a book for this institute. Finally he said he had to get back to his office but wanted to lunch with me again and would be calling me. He did give me his business phone number but suggested I call him only if it were important to do so, like canceling lunch. He did call and we lunched again at the same place.

The second round was quite a bit different from the first. He had fibbed in telling me he was with an investment company. He was with the U.S. government, in what capacity and what agency he wouldn't say. What he did say was that he had been asked to contact me regarding what I knew about the French nuclear weapons program; all this in a very soft voice. In a very loud voice, because I was being asked by someone I didn't know, with no credentials I could check out with some one at the U.S. Embassy, to spy on a country I really liked, even if I didn't like its government, but then I didn't like mine either, and was quite aggravated to have such a request made of me, I told him no way. He was asking me to be a spy, which not only wasn't my bag but was an art I was totally incapable of practicing. I would have been caught in a flash and God only knows what would have happened to me. One thing God, and maybe you too by now, did know is that the U.S. government would have done little to help bail me out of such a mess. With this loud outburst of mine, the poor guy panicked, begging me to lower my voice, and allowed he had to get back to his office, and left me sitting there trying to figure out who he was and if he was a U.S. intelligence officer, why didn't he meet me at the Embassy so I could check him out; and then say no.

I was really bothered by this whole episode. He had seemed to be one very nice fellow who claimed to share my views on nuclear weapons and had no use for the commies. Really liking him and instinctively trusting him as my kind of an American, I felt he owed me some kind of an explanation of his not too subtle request. So I decided to call his office and suggest another lunch. However, when I called, someone speaking French, which I could barely understand, managed to tell me that no such person worked there nor had she ever heard of him. I never saw or spoke with him again.

Some time afterward, I lunched with the air attaché at the U.S. Embassy, an Air Force colonel whose job was to openly spy on the French, with their full knowledge, trying to find out as much as he could about their Air Force. I brought up my encounter with my vanished luncheon companion and ventured an opinion he was with the CIA, which of course had agents operating out of the Embassy who everyone, including the French, knew about. Like the Boston investment guy, he panicked over how loudly I was talking, we were in a French restaurant next to the Embassy where I'm sure French intelligence agents came to listen in on what Embassy personnel were discussing. He asked me to lower my voice and when I was through, in a whisper that was barely

audible he told me he had heard about this guy but had never met him because he never showed up at the Embassy. The colonel had surmised that my erstwhile lunch pal operated directly out of CIA headquarters in Washington and was one of those deep under cover agents nobody at the Embassy at his level was even to know existed. Why he had contacted me and who had put him up to it, the colonel had no idea. I certainly didn't and if I did I wouldn't tell you. However, I'll give you a guess.

I strongly suspect he was with the CIA and had been fully clued in on our neutron bomb relationship with the French and was aware that I had been associating with their nuclear weapons people. He probably had been told by his boss in Washington to get together with me and try and find out whether the French had told me anything the CIA didn't know about. Which I doubt was the case, but then, with my opinion of our intelligence community, maybe it was. I might say that when I returned for good from France the CIA asked me to debrief them on my experiences, which as a loyal American I reluctantly did. But it was all one-sided; nothing they said or asked contained a hint we were in bed with the French on the Bomb. I dutifully supplied them with all the information I had on the French, which they may or may not have known. My guess is they didn't. With their mentality they probably figured everything the French had done resulted from the help we had given them. I doubt whether it ever had occurred to them that the French, who hardly were scientific Neanderthals, may have had minds of their own and done things their own way. I remember when I first met General Gallois, some 20 years before, he had told me that Frenchmen were Frenchmen and even though they argued among each other on how to do things, when they did it they did it the French way, which had a pretty good record in the annals of science and engineering.

As for my unpleasant discussion with Jim Wade about removing my security clearance, the matter didn't then end, as I thought it had. Shortly after I spoke with Wade, while I still was in the U.S., I got a call from an Army colonel in the Pentagon's Office of Special Investigation requesting an interrogation regarding my French activities. We met; he asked me to raise my right hand and swear to You Know Who to tell the truth and nothing but the truth. His office had received reports that I was compromising U.S. security secrets to the French. My loyalty was held highly suspect, and he had been ordered to conduct the interrogation. I don't think I've ever in my life felt so outraged and disillusioned over my country. Better yet over my government my country had put into office.

"Colonel", I told him, "I've had Top Secret clearances, Special Intelligence clearances, and nuclear weapon clearances for more than 30 years which have been renewed time and time again and never has anyone raised the slightest doubt over my loyalty. Now you're telling me somebody has reason to doubt it. Why don't you just tell me what the charges are so I can defend myself if I have to. "He wouldn't do that, explaining this involved information I wasn't privileged to have access to. Real democracy, huh? But that's the way it goes in this business. I could have brought the meeting to an end right then and there by demanding a hearing before some judicial official cleared for these matters, but I was in no mood to become a nuclear Dreyfuss. Assuming justice prevailed and I won, I would have lost. I could have kept my clearances but lost my job. Which would have negated the need for the clearances and maybe sent me back

to grave digging. Instead, I chose to play ball and told him to commence with the investigation. This went on for a couple of hours. It was not very pleasant.

“We’ve gotten reports that this institute you’re with is an extreme right-wing organization working with French Intelligence and that you may be divulging classified information. Would you mind telling me about this group and your relationship with them?”, the colonel asked. I told him, starting from scratch, the whole story on how I came to Paris and what I was doing there.

As for the institute, it was composed to a fair degree of former French intelligence officers. In fact, its president, a guy by the name of Michel Garder, had headed French military intelligence before retiring. (He had been born and raised in Russia before coming to France and had been so successful in spying on the commies, he was on the KGB hit list. The poor guy was a nervous wreck most of the time, worrying they might do in him or his wife.) However, with one exception, none of them had ever tried pumping me for secrets. The exception was my pal Marc Geneste, who had brought me there and for the first few months interrogated me mercilessly about the neutron bomb. Finally, I told him to cut it out; but if he was to persist the least he could do was have the probing done by a luscious young French gal, in bed. He smiled and said that if he could get his hands on such a creature, he would be her first target, not me. (Marc, incidentally, before getting into nuclear planning had been with French Intelligence.) As for Marc’s incessant querying, knowing far more about nuclear weapons than he, by asking him why he was asking me certain questions, which I’m sure French nuclear experts had fed to him, I was able to gain a pretty good idea what the French were up to. For the aforementioned reasons I wasn’t about to pass this on to any Americans in France. When I did relay it to appropriate people on visits to Washington, it was received with indifference and even denial. (Why?)

As for their ideological preferences, most of them were Gaullists, although a couple of them had been thrown in jail for rebelling against de Gaulle when he gave Algeria back to the Algerians. However, the French are very forgiving about these things and held no grudge against these guys for their patriotic transgressions. There was never any doubt in my mind that not only were they Frenchmen of the highest dedication to their country, but they were also as anti-Soviet a bunch as I’ve ever met. (My father would have loved them.) They also were very pro-U.S., if not exactly pro-U.S. nuclear policy which they went out of their way to ridicule at every turn. So did I, and trying to be as forthright as possible with the colonel, I brought out my views on our policy.

As for their courage in fighting for their country, they probably represented the greatest concentration of Croix de Guerre holders in France. Marc had a whole chestful of combat medals for fighting the Nazis and Ho Chi Minh. Another member, Jacques Zahm, who had been captured by the Viet Minh in Indochina, shot in the head, losing an eye and part of his brain, and left to die, was one of the handful of top French war heroes. Some of them, including the president, who also was highly decorated, had been captured by the Germans during the war, sent off to concentration camps from which they were able to escape and join the French resistance, and then de Gaulle when he returned with the allied forces, and get some of their medals. To question their loyalty and dedication to freedom and democracy was absurd.

By now, the colonel, a combat veteran himself as I recall, clearly was becoming very uncomfortable. However, he had come with a long list of

questions provided by somebody, or bodies, who harbored little good will for me, that he was obliged to ask. The interrogation continued until he ran out of them.

When we were through, he reached across the table and shook my hand, telling me he was just about as outraged as I professed to be. He was outraged at being ordered to put me through this ordeal, but orders were orders. He apologized profusely and left.

At this point, my sympathies for what poor Oppenheimer had to go through, being shamed and humiliated (even having his sex life brought out into the open) couldn't have been greater. My opinion of the U.S. government, at least that part involved with national security, which had been low enough, couldn't have been lower. I hadn't thought it could get any lower. It did.

I used to have the world's second greatest dog (Yours was first.) This was Virgie, a French poodle, who was with us during our stay in France. Like Mary and her lamb, every where that Sammy (which I was called as a kid) went Virgie was sure to go; on daily walks around the neighborhood, and when I did the grocery shopping (which I preferred to do because this way I could get French cuisine for myself that my all-American family wouldn't touch). Needless to say, we became neighborhood characters and the French, loving dogs as they do, took quite a shine to Virgie who, little did they know would become the most famous dog in France.

The guy taking the biggest shine to Virgie was my butcher, a very kindly old fellow who, despite the sign on his door, imposed on him by French sanitation authorities, that no dogs were allowed inside, always welcomed her with open arms and scraps of meat. Which had his wife, a very frugal woman, beside herself and she would glower at him each time he gave Virgie a bone with plenty of meat on it or some other morsel. However, he was not to be intimidated by his glowering wife and a few times a week we would go through this routine.

One morning in January 1980, Virgie and I walked into the *boucherie* and before I could begin ordering up, his wife raced around the counter with a plate of vittles, placed them before Virgie, proceeded to pet her, and smiled, better yet beamed, at me for the first time. Her husband also was beaming, but he always did when we walked in.

I was dumfounded. I stood there, my mouth hanging open, until she raced back behind the counter and came back with a copy of *Paris Match*, the French equivalent of *LIFE* magazine. She opened it and there was Virgie (and myself), along with a long feature article giving a glowing account of yours truly, *Pere de la Bombe a Neutrons*. If you're wondering what had happened, let me explain.

A few days before, Giscard d'Estaing had gone on French national television to announce that France was developing the neutron bomb. With that, all of a sudden, the wraps on my presence in Paris were off, and for some weeks Virgie and myself were the most famous twosome in France. The media was informed by the government that I was living in Paris, providing them with my phone number and address, and with that everyone took off after me but good.

The reporters, along with photographers, were lining up to get into my apartment to interview me and each time a picture was snapped Virgie was in

my lap lapping up the publicity. Of course, she always was in my lap anyway and may God have helped any photographer who wanted to remove her and get me by myself. She would have bitten him in the ass; I might have too, we went as an entry.

Not only were they writing about me, but I was now allowed to write for them and every article I wrote was eagerly snapped up. One major newspaper declared me France's Man of the Week, without bothering to mention Virgie as *Chien de Semaine*. Had she read French, she would have been outraged. I was.

As for the rest of France — the politicians, the military, and even the savants (hardly a humble batch in France) — they were falling over themselves wanting to talk to me and to have me lecture around on the neutron bomb and nuclear strategy. Naturally I praised France's decision to develop the Bomb and had the highest praise for their new nuclear strategy, which pleased the government, who never wanted me there in the first place and had made life so miserable for me and my family, no end. I got word that the President wanted to meet me at the Elysee Palace and might even bestow a medal on me. It didn't happen, perhaps because they had checked it out first with my government and discovered I wasn't quite as popular in Washington as I was in Paris. The French Foreign Minister, when lunching with a senator, with whom I dined that evening, asked the senator to pass on his warmest regards to his dear friend Sam Cohen. I had never laid eyes on him. And so on until we left to go home, which I was more than glad to do, although I wasn't exactly looking forward to going back to my occupational grind.

You'll recall, when I brought up the episode involving Jim Wade's attempt to remove my security clearance, I had asked for your forbearance in hearing me out on a long tale. I'm not through yet.

Some of you old enough to remember may remember reading in the newspaper, or seeing on TV, that a U.S. satellite named Vela, designed to help monitor the Atmospheric Test Ban Treaty (signed by the U.S., the USSR, and most other countries, in 1963) had picked up at 3 a.m., September 22, 1979, what seemed to have all the earmarks of an atmospheric nuclear burst in the low kiloton range (the range of concern for neutron warheads) in the South Indian Ocean. All hell broke loose, for no one had anticipated such an event. Surely, the parties to the treaty would never dare chancing such a test for fear of being found out. Almost surely, those who hadn't signed it (including France, Israel, India and China — all known to have nuclear capabilities) also wouldn't dare, for fear of international condemnation. At least that was the conventional wisdom.

Consternation broke out practically all over the world over the violation of an agreement — official and unofficial — that had been heralded as a huge step toward ultimately forbidding all nuclear testing.

Particularly distressed was the U.S. government, then presided over by Jimmy Carter, who loved nuclear arms control treaties. Something had to be done to put this matter to rest. So, as almost always is the case in resolving such matters, the President set up a panel of experts under the direction of his science advisor, to explore the matter and report on its findings. Needless to say, the panel was composed of almost entirely of nuclear arms control enthusiasts and my prediction was that it would come up with negative findings: there was no

nuclear test. I was right. The panel concluded that what Vela had observed might have been caused by a meteor coming down in the vicinity, or by a lightning burst during an electrical storm, or some other natural phenomenon; but almost surely not by a nuclear explosion.

Not everyone agreed with the panel's findings, but most countries having detection equipment that might have picked up the event, especially the detection of some radioactivity, for understandable political reasons, were loathe to question the panel's finding. In the U.S., however, the Los Alamos experts vehemently rejected these findings, insisting it was nuclear, although there seemed to be certain anomalies in the measurements indicating the burst didn't behave like a normal burst. As for the Livermore lab, who was equally competent to pass judgement, it stayed mute, refusing to get into the debate.

As for yours truly, while I hardly was an expert in this area, I got hold of the panel's report, read it through, paying particular attention to the tracing of the instruments that recorded the behavior of the fireball (in case it was a nuclear explosion), and told myself that these anomalies could be accounted for by a neutron bomb going off in the air, where neutron bombs are supposed to go off. (I contacted some friends at Livermore, asking them to analyze the measurements to verify or deny my suspicions. They begged off, saying they had more important things to do. Which I found a bit strange, considering our splendid relationship and their normal scientific curiosity to delve into things like this.) If that actually were the case, it was a neutron bomb burst, then the burning question was: Who did it and why?

Those in the U.S. Intelligence community who disagreed with the panel's finding, but were afraid to speak out openly, had decided that the probable culprit was Israel, acting in cooperation with South Africa, with whom they were very chummy. The Israelis, who at that time were refusing to admit (they still don't) they were amassing a nuclear stockpile, hardly were about to stage such a test within their own boundaries; it would have been detected with consummate ease by practically everyone. The South Africans, who seemed to be getting into the nuclear weapon business and were caught, via observation satellites, constructing what seemed to be a nuclear test site, also would have risked almost certain detection had they detonated the device over their territory. So if either country, or both, had decided to perpetrate the deed, the sensible thing would have been to go off to some remote place where the likelihood was very low the test would be observed. That was the conventional wisdom. Maybe it was right. I think it was dead wrong.

Primarily because I had little trust in the U.S. government over matters such as this, and full trust in the integrity of the Los Alamos scientists, when I returned from France I began mulling over the problem. I also made contact with my friend Arnold Kramish, the nuclear sleuth who accurately predicted the first Soviet nuclear test, and we had lengthy discussions on the matter. Finally, based on my experience in France and Arnold's genius in solving such problems, we came to agreement that the French had done the deed. Out of our discussions came the following factual tidbits:

We knew the French had been developing the neutron bomb, which they had every right to do having long been a nuclear power. Not only did they have every right to test it, but they had every right to test it wherever they wished, including in the atmosphere. Although in deference to world sensitivities, the

French had constrained their testing underground, at some Polynesian islands they owned, they had not signed the Atmospheric Test Ban Treaty and thus could legally test in the air if they wished. However, to test and get caught by the U.S.'s or some other country's monitoring system would be mortifying and since the U.S. in particular was closely monitoring their Polynesian test site, any atmospheric test, no matter how low in yield, certainly would be picked up. There would be hell to pay. So if they wanted to test a neutron bomb in the atmosphere, they would want to go off to some out of the way place. Were any suspicions aroused over what they might be up to, they easily could pass it off as a scientific expedition, which they frequently were sending to out of the way places.

So much for explaining how the French might have been up to some hanky panky and probably, almost certainly, gotten away with it. However, if you've got a curious mind, you may be wondering why, in testing the Bomb, they just didn't go on doing what they were doing. Why didn't they simply test it underground, as we had tested our neutron bombs; in which case nobody could care less? I can't answer for them, but I can answer for myself.

As you might guess, neutron bombs don't behave like regular bombs do. They don't spew out scads of radioactivity and they don't display the same physical phenomena regular bombs do. In a properly designed neutron bomb, most of the energy manifests itself in very energetic neutrons which, when they escape the warhead, considerably heat up the air in the vicinity of the burst. This in turn has an effect on the nature and strength of the blast wave which, without actual atmospheric testing we can't accurately determine. It is the blast wave that creates the fireball that for a brief spell is brighter than the sun and emits light at an intensity that for a while turns night into day. (I've seen this on more than one occasion when I used to go off to Nevada and Pacific atolls to watch nuclear tests.) This is the light that Vela saw, except that the way in which it was emitted didn't resemble a regular explosion.

Now if you're serious about producing and properly using neutron bombs, to minimize civilian damage, which would be especially important for the French who might have to use them over their own territory, you'd want to know just how much blast will be produced by these weapons. Consequently, you'd want to test one of these things in the atmosphere perhaps two or three thousand feet off the surface and then make careful measurements to get useful data. You can't do this satisfactorily by putting some bright scientists to work with equations and computers. In other words, for political reasons (and the French are superb political animals), you'd have to pull off a sneak test (and French politicians can really be sneaky). All this tells me that it was the French who conducted this mystery test.

In my discussions with Arnold, I learned that before deciding on the Polynesian test site, the French had very seriously considered doing their testing in the Kerguelen Islands in the southern Indian Ocean. These islands, right in the middle of nowhere, long had belonged to France and except for a minute staff of scientific personnel, a hundred or so, were uninhabited. So we focused on these islands for our stealth bomb test scenario, which went something like this.

One small supply ship had sailed out of some French port, carrying the warhead and measuring equipment and headed off to one of the countless islets of the Kerguelen archipelago. (It could have been one of the ships normally

supplying the scientific group, but with no intention of visiting them.) The warhead would have been hoisted to the proper burst altitude by a balloon (the French had done this many times before in their Polynesian tests, and had this technique down to a fine art; you may remember it was the Montgolfier brothers who sent up the first hot air balloon over two hundred years ago), the measuring devices properly positioned at the surface, and at 3 a.m., when the scientists were sound asleep hundreds of miles away, a very small nuclear bang would have gone off. After which they would have collected their equipment and sailed back to France with nary a soul, except Vela, which saw the event purely by accident, having any idea anything had happened. That is, except for myself and Arnold who had no proof positive but between us enough circumstantial evidence to be convinced what had gone on.

Or am I wrong here, and some others outside France, who did have proof positive because they had helped and connived with the French to make this test possible, also knew. I'm talking here about a highly limited number of people in the White House, the Defense Department, the CIA, the Livermore lab and maybe, but maybe not, the State Department which normally shies away from anything that might interfere with nuclear arms control.

If what I've been saying is really true, and I strongly think it really is, how did all this come about?

In the mid-1970s, when Gerry Ford was President and George Bush was director of the CIA, we were trying to mend our relationship with France, which long before had soured for many reasons. One major reason was the French nuclear weapons program and their policies for using them, which flew in the face of ours, particularly over the use of strategic weapons which the French wanted to use right away if their territory was being invaded by the Soviets. This terribly bothered us, for before releasing our strategic weapons we wanted to give the battlefield weapons a chance to stem the tide. Toward trying to bring them into our camp, I think we approached them surreptitiously and offered to help them develop a neutron bomb capability. This was also around the time we had made the decision to produce neutron bombs but lacked the means to test them out realistically in the atmosphere. So to get some diplomatic mileage and obtain some badly needed scientific information, I suspect we contacted the French and said something like this:

"Look, you would sure like to have the neutron bomb for your defense rather than the battlefield nuclear clunkers you now have in your stockpile (Marc Geneste, for whatever reasons, had told me that the warheads for their battlefield rockets had bangs about the same as the Nagasaki bomb, with technology to match, which I found astounding and which told me that the French nuclear weapon designers were living in the Dark Ages). If you'd like to have the neutron bomb, we're willing to help you, but we'd like some quid pro quo. We help you and your scientists test it in the atmosphere, which we can't do, and pass the data, which both of us require, on to us. We'll do what you can't and you'll do what we can't. Fair enough?"

"So suppose we put your designers in contact with our designers and we'll help you as much as we can without violating the law (which was pretty vague when it came to giving nuclear weapon assistance to an acknowledged nuclear power like France who, after all, was a

NATO ally, albeit not the most cooperative) and you can do the dirty work by clandestinely testing it and providing us with the results. We'll both benefit and so will NATO. How about it?"

That's what I suspect transpired.

I remember, after having returned to the U.S., revisiting France in early 1981 and being picked up at the airport by Marc Geneste and telling him I thought the French had conducted the mystery test. But I did not tell him what I've been telling you about how and why it came about. Did he ever get flustered. He reddened and for a while was speechless. Finally, he blurted out: "You're absolutely wrong, I know we never did any such thing and besides these are things I would know nothing about anyway." When I pointed out to him that I found it curious he could have so positive an opinion on a matter he knew nothing about, he reddened even further and spent the next ten or fifteen minutes trying to explain what he meant, which wasn't very convincing. After this performance, whatever doubts I may have had about my allegation decreased by an order of magnitude.

During my visit, I was introduced to a journalist from Paris's most widely read newspaper, *France Soir*, who wanted to interview me. Fine with me and the interview came out on the front page the next day, and was mainly, starting with the headline, about the mystery test, but with no mention of U.S.-French connivance. The French government had a conniption fit, so I was told; but at least let me remain through my planned stay. I never went back to France since that time. I may never go again; I'm not sure they'd let me in.

One last comment on the French connection. Sometime after my last visit to France I learned that Livermore, with assistance from my pal Jess Marcum, who you'll recall did the first really scientific neutron bomb radiation calculations, was working with the French on neutron bomb radiation effects. This was not an official secret but it was being done pretty secretly. Needless to say, despite the fact that I was responsible for Livermore getting into the neutron bomb business in the first place, no one ever informed me of this. By this time — of their doing, not mine — my relationship with the lab had come to an end. Despite all the help I had given them over the many (like thirty) years since the lab was founded, it became apparent I wasn't welcome to visit there any more. I'd like to say this broke my heart more than a little, but it really didn't. Had I visited there only would have been a strain and, considering the hopelessness of trying to do something new and imaginative in the nuclear weapons business, there was nothing I could have told them that would have been of any help. All good things come to an end; I'm just sorry it had to end this way.

I've told you twice you're in for a long tale. Let's make it longer, more complex, and more arcane.

While residing in Paris, I became aware that Geneste's institute was singularly interested in Red China. Some of its members seemed to be on very good terms with the Chinese Embassy. Now that was fair enough. First of all, the institute's job was to make analyses of the global situation — military, economic, political; just like the RAND Corporation and other think tanks — toward assisting the French with their foreign policy. So, in trying to find out about the Chicoms why not make friends with them, which they did. However, I wasn't aware of any such relationship with anyone from the U.S. Embassy.

Second, every country is entitled to its own foreign policy and if the French felt comfortable with the Chicoms, all I can say is that so did we at this juncture, the late 1970s and despite Tienanmen Square, George Bush, our first envoy to China, practically adores them these days.

Some of you may recall, before Richard Nixon got Watergated out of office, George Bush was cycling around Peking all the time like he was running for office in China, where almost everyone cycled. Had the Chinese preferred to jog around the city, I suspect he would have jogged, as he does now that he's back in America where jogging is more in fashion. (Presidents are supposed to be pretty busy guys and why don't they hitch themselves up to an exercycle in the Oval Office to have more time for the country.)

No matter, by the late 1970s the name of the game was to take a Chicom to lunch and it was very clear that the U.S., finally catching up with the French, was very cozy with the Chinese. To deter the alleged threat of Soviet aggression, we regarded the Chinese as allies and were helping them as much as possible in the military area, supplying them with all kinds of conventional weapons to bolster their defenses. I for one was far from happy about this, reasoning a commie is a commie, and none of them were to be trusted. But who was I to swim against my own government? One of the questions I asked myself was that if we were willing to conventionally arm a country that not too long ago was helping Ho Chi Minh slaughter thousands and thousands of Americans, how far might we go in providing them with other kinds of arms, like nuclear ones. But these were questions only a lunatic would be asking, so I kept them to myself.

Some months after I had more or less settled down in Paris, Marc Geneste told me that unlike 50 million Frenchmen, the Army attaché at the Chinese Embassy, Colonel Wang, had become aware of my presence and who I was, and very much wanted to meet me. I wondered how he had become aware of my existence — you already know, except that in my total innocence of what was going on around me, I couldn't even guess; but no matter: a Chicom was a Chicom and I didn't care to meet any of these guys. I rejected the idea out of hand. But Marc persisted and the head of the institute, Michel Garder, who was particularly close to the Chinese Embassy people, assured me the Chicom colonel was a pretty okay guy and he would appreciate it very much if I were willing to meet him. I figured, if everybody in the government back in Washington was more than willing to break bread, or crispy noodles, with a Chicom, whose country we now formally recognized and had full diplomatic relations with, and unlike everybody in the French government was willing to dine with me, why not. So a dinner date was set up and the colonel, who spoke a passable brand of English, took my wife and me to perhaps the best Chinese restaurant in Paris. Which isn't saying a lot because in my opinion the French don't know good Chinese food from beans. Most Chinese restaurants I'd eaten at in Paris tasted far more French than Chinese, to keep the customers coming.

Although the colonel's English was pretty poor, we had a rudimentary understanding of each other. He was a very congenial guy and during the course of the evening informed me I was a number one national hero in China because of the neutron bomb, quite a bit different from my reputation in the Soviet Union where no less a person than Leonid Brezhnev had publicly singled me out as the devil incarnate. Were my wife and I interested in visiting China, he assured me that his government would have us over as special guests

of honor. I thanked him and his government ever so much, but demurred as diplomatically as I could, figuring that was all I needed considering the security clearance difficulties I was having just by being in France.

However, when he asked if we could get together again, I allowed that was fine with me. In no way did he seem to be prying for any classified information, as my friend Geneste was doing. What the purpose of his wanting to socialize may have been, I don't know. Maybe he had been told I was aware of something nuclear going on between his country and mine, which seemed wildly improbable to me at the time and with my presumably great reputation in the U.S. government (hah!) he might pick up some information I knew but he didn't. But who knows and since my government hadn't clued me in on anything that might be going on between them and the Chicom, I felt no need to inform anyone at the U.S. embassy of my meetings with Colonel Wang. At any rate, we got together several times, including one dinner at our apartment where the colonel undiplomatically informed my wife Chinese cooking was better than hers. Which it is by a country mile.

The last time I saw Colonel Wang was at a reception at his embassy where all the diplomats in Paris (except possibly the Soviets) were present. When one of the military attaches at the U.S. Embassy saw me there he practically jumped out of his pants. "What the hell are you doing here?", he demanded to know. Because Colonel Wang invited me, I explained, saying nothing more. I'm sure this was reported back to Washington the next day. Shortly after that, Wang was sent back to China and shortly after that, Marc Geneste told me, he reappeared in Paris for another tour. Somehow or another, I got the distinct feeling that something was going on between the two countries regarding the neutron bomb. Wang, as I remember, had been an infantry officer with a lot of planning experience and was probably in a position to well understand the importance of battlefield nuclear weapons, especially neutron weapons which he told me were the best weapons for battlefield operations.

Now that I had become aware of what was going on between the U.S. and the French on the neutron bomb and the fact that U.S. declaratory policy and actual policy were not necessarily one and the same, my mind began wondering what might be going on between the French, the Chinese and ourselves on the Bomb. In order to help contain the Soviets on all fronts, was it possible, I asked myself, that we had something going with these two countries to buttress this containment? Although by now I was suspicious enough about our government to believe that such an arrangement was entirely possible, still, if it was going on, why hadn't somebody in the government, which hardly has been monolithic on matters like this, leaked it out to the Washington Post or the New York Times and the story splashed on the front page and every TV screen. Things like this almost always get leaked and this one really would have been a great a story that would have had the Congress and the American people orgasmic. So maybe I was merely indulging in idle daydreaming, which is a lot of fun when you've been involved in the matter as I had.

Prior to coming to France, I don't recall ever having seen anything in the U.S. media having to do with a French neutron bomb program, to say nothing of their possible involvement in the Indian Ocean mystery test which for quite a while got full media coverage that blamed it on practically everyone but the French. It wasn't until the French officially announced their program in 1980 that the media picked up the story. As for the Chinese, who had been

fantastically closed mouthed about their nuclear weapons program since its inception, I certainly don't recall ever seeing any news item indicating their interest in the Bomb, let alone having embarked on a development program; nor did I ever pick up anything in classified circles. The standard story in intelligence reports I had seen was that they were coming along slowly in their nuclear weapons program and showed no signs of approaching the U.S. level of warhead technology. (This was based on the number of tests we had observed and our analyses of them, which never have been particularly accurate or even meaningful. As for neutron bomb tests, having such low yields the chances were that we wouldn't even detect them and even if we did there was no way of conducting any meaningful analysis; were the tests to be conducted underground the chances of even detecting them would be zero.) The general consensus in the U.S. intelligence community was that the Chinese were primarily interested in strategic weapons for the purpose of deterring Soviet attack and had little to no interest in battlefield nuclear weapons that might allow them to hold back the Red Army. They would deal with the technologically superior Soviet ground forces through guerrilla tactics developed during the revolution. As for weapons like neutron bombs, unlike the enthusiasm Colonel Wang had displayed to me and strongly intimated his government shared with him, as our smart asses chose to view it, no way. Then something happened.

In September 1988, it was reported, first as I recall by the Washington Post, that the Chicombs had tested a neutron bomb underground. The story came and went and attracted practically no public attention. This was understandable, for by this time the neutron bomb long had disappeared from the public interest and media coverage of the Bomb, for obvious reasons, since Reagan had put the Bomb issue to rest back in 1981, had disappeared. However, this brief news item sure caught my attention and the conspiracy theories I had been so pleasantly concocting ten years back now came bubbling back to the surface.

The sparse media coverage of the event contained no explanation of how we had found out about the explosion and why we were so sure it was a neutron burst. There was no mention of the source of the news item: Did it come from the U.S. government, directly or through a leak; or had the Chinese parted company with past secrecy practices and put out the story; or had some one from somewhere with good media credentials found out what happened and passed it on? Had the event been reported ten years earlier, when the neutron bomb debate was in full bloom and I was in full public view, I can guarantee you that my phone would have been ringing off the hook with calls from the media wanting to know what was going on. This time, nothing; no calls from anyone, not even from old pals of mine who had come up with me in the nuclear ranks. The story came and went and the world continued spinning around on its axis.

On the other hand, my little mind was spinning like mad as I tried to make sense of a happening I could have predicted but knew too little about, except for this affair with Colonel Wang through the institute, to allow any responsible prognosis. Everyone has a right to be irresponsible unto themselves and I chose to stick with and even reinforce my conspiracy theory, but kept it to myself. It would have been fruitless to try and get out a story which no responsible journal would accept, and I wouldn't blame them even though my neutron bomb credentials were pretty good; and if I had succeeded by going to some

tabloid and throwing in some nuclear gossip as a sweetener, an outraged U.S. government would have denounced me in no uncertain terms and I would have deserved it. So I kept my suspicions, that were getting darker and darker, to myself.

A couple of years go by, after the Chicom neutron bomb test story came out, and one day all hell breaks out in the media: the Chinese, whose scientists had been making regular visits to the Livermore lab had taken advantage of Livermore's lax security and stolen sufficient secrets about neutron bomb designs to enable them to develop and test one of their own. Washington was outraged and Livermore's security system was under the most intense scrutiny imaginable. An anonymous government official was quoted as saying there was a "total, complete lack of management oversight" that was "absolutely devastating. Anything you've ever heard or read about the lab pales by comparison." A guy by the name of Ed Appel, head of the FBI counterintelligence office in San Francisco confirmed that an espionage investigation at Livermore had been conducted, but would not provide any details except to say that no arrests had been made. (How come, in view of the allegedly great gravity of the situation?) George Carver, a former CIA deputy director under George Bush and others, a guy we would expect to know a lot about things like this, declared: "In 1988 the Chinese blossomed forth with the neutron bomb, which was made from data stolen from U.S. research centers. That's what a number of people think, including my friends in the bureau (the FBI)." So the official story, offering no details on just how the neutron filch came about, was that sloppy U.S. security and sneaky Chinese intelligence agents posing as scientists combined to allow the Bomb secrets to pass into the hands of the Chicoms who then were able to develop and test the Bomb which otherwise they weren't smart enough to do as soon as they did.

In launching forth with his diatribe against Livermore and the Chinese espionage, G-man Appel philosophized: "I'm more afraid of a visiting physicist than I am of an intelligence agent. I worry about the scientist who shares his formula with the other guy because they have a wink, a smile and a handshake, or they're going to save the world together.", adding "The Americans are told that 'Mother China needs assistance to become modern' and that nuclear weapons offer the Chinese a chance to stave off a Soviet threat while they develop." With this appraisal, Appel said it all, and very profoundly. The only problem I have with him is that he didn't say it quite right, because he couldn't. So he took it out on the poor guys at Livermore instead of bringing up the possibility that to save China from the Soviets they had been ordered to pass on neutron bomb technology to the Chinese for the very reason he pointed out.

As Appel said, no arrests were made. Since it takes two sides to make espionage possible, how come the great FBI, with help from the great CIA and other U.S. intelligence agencies, weren't able to track down the culprit, or culprits, on the U.S. side and send the bastards off to jail? Considering that we must have had a full record of which Americans were told to see which Chinese, and we're not exactly talking about hundreds or thousands of guys (in fact, for the neutron bomb's design principles, I'd guess we're talking about a relative handful), it should have been a cinch to probe the matter and in short order find the guilty party, or parties and press charges. If Appel was right, this guy, or guys, would now be behind bars, like Jonathan Pollard who claimed he only was trying to help a dear ally, Israel, in passing secrets on to them. If I'm

right, or my conjecturing is right, there never could have been any arrests made, for one simple reason; the people accused would have blurted out the true story, that they were instructed to do what they did. And that would have had Congress in high gear with hearings putting the Iran-Contra ones to shame. So I don't buy this espionage and Livermore security sloppiness story one bit; not to say that the Chinese weren't about to try some espionage or the Livermore guys were meticulously careful in preserving security, but rather that I find the U.S. government's story about as convincing as its initial attempts, starting with Reagan, to mislead the American people on Iran-Contra.

What I find remarkable is that after all this exposure, no public hearings were held by Congress, no Chicom spies were caught or even exposed, and no Americans were prosecuted or even lost their jobs. From what I gather, after this exposure, Livermore security measures were tightened considerably and those who might have committed a minor security infraction a few years back were severely admonished to watch their step, or else. But this may have been tantamount not to locking the barn after the horse was stolen, but locking it after the horse was given to a friend. Nevertheless, like the Chinese neutron bomb test coming and going almost overnight, essentially the same thing happened with the alleged espionage revelation. I don't blame the media for not more thoroughly investigating the espionage affair. By this time, 1990, nothing was less popular than the neutron bomb and the media was infinitely more concerned with what kind of illicit activities might have been going on in the White House. But I'd like to think that the Intelligence Committees in Congress, now that the story was out in public, should have picked this one up and run with it and given the American people a full explanation of what they knew about it. Except this was no Iran-Contra affair and they probably figured there was no political mileage to be gotten out of it. Plus, I suspect, the Administration, appealing to their patriotism and all that crap, had asked them not to do anything about it, in the best interests of our national security. I would add to this that almost surely these congressmen had been clued in on our dealings with France and had agreed to keep quiet about it.

Finally, I would repeat that as for France there was no hard and fast law forbidding our passing on neutron bomb secrets to the Chicoms, who in many ways had become far better military allies of ours than the French. Like the French, they were an acknowledged nuclear power and had Congress or anyone else made a fuss over this business it would have been next to impossible to prove anything illegal had been done. Like the claims and counterclaims over the legality or illegality of the Boland Amendment during the Iran-Contra fracas, where people were found guilty of very clear cut legal infringements but let go over legal technicalities.

As for the ethicality of helping the Chinese (and the French for that matter) develop the neutron bomb, whoever might have been responsible, like an American president I would normally have no use for, for this, I would take my hat off to him. If a country wants to acquire a weapon that can effectively and discriminately defend itself without having to consider the alternative of blowing up and killing millions of noncombatants with hydrogen bombs, then may the Good Lord bless them. And if we can be party to such an acquisition, then may the Good Lord bless us too. I think He has blessed us, very possibly, and particularly, George Bush.

In the early 1980s, after I had left France and returned to the grind that got me to France in the first place, once again I began getting bored. Being a nice Jewish boy and an ardent supporter of Israel, I began wondering about another sabbatical, this time in the Promised Land where, as in France, I might tie in with another institute. I had been giving a lot of thought to Israel's defense problems and had worked out a scheme where using underground-burst neutron bomb explosives, or specially designed high power nuclear reactors, they could put up a barrier around their country which made it virtually impossible for the Arabs to conduct a successful ground invasion. Having such a barrier, which posed an impenetrable "wall" of nuclear radiation against any assault, they would be in a position to come to terms with the Palestinians, give them back the occupied territories, and have a secure endurable peace, at least in theory, based on cold hard scientific calculations, not hopes for successful diplomacy. Surely, I thought, when concocting the idea, this would be preferable to keeping with a policy that said in effect: "You Arabs threaten to overrun us and there goes Damascus, Amman, Baghdad, Riyadh, Mecca, you name it." The Arabs, in my mind, were crazy enough to start a war that could produce this end result; and the Israelis, in my mind, were crazy enough, with their Massada/Holocaust complex, to bring it about. So I figured it would be great to spend a year or so in the land of my ancestors (so I was told by my mother, whose immediate relatives contained a disproportionate number of flaming redheads who didn't look all that Semitic), working with my brethren on this idea.

Of the two approaches, the neutron bomb, by far and away represented the most effective device for producing the radiation wall. However, since Israel wasn't about to admit any interest in stockpiling any kind of nuclear warhead, let alone neutron warheads, I figured that if they were interested in having me help them along these lines, I would restrict my activities to the nuclear reactor approach, which had none of the political drawbacks of using nuclear explosives. However, aside from whether the scheme used nuclear explosives or reactors, what was very clear in my mind was that the neutron bomb, used in its intended manner (that is, the way I intended it to be used, not the way the U.S. Army envisaged it), could have the same defensive result at but a fraction of the price of a barrier. Moreover, used in its intended way, an arsenal of perhaps a hundred neutron bombs, delivered by aircraft or short-range missiles, could protect Israel from a massive surprise Arab armored attack at but a small fraction of the cost of its current and projected conventional military force.

I told myself that no country on earth had a more defensible rationale for having a neutron bomb defense and even if the government wasn't about to admit to having an interest in such a defense, surely universities and think tanks, being unfettered by government restraints and already having been heavily involved academically in discussing nuclear weapon matters, would be interested in having someone with my background come over for a while to enter into these discussions (they all spoke English, probably better than myself) and, as in France, write a book giving Sam Cohen's ideas on Israeli defense. (Incidentally, the book I wrote in France, which heavily emphasized using neutron bombs, by standard delivery means or in a Maginot Line kind of barrier, got more publicity, so I was told, than any military book in French history. It was favorably reviewed in every major newspaper and magazine — one magazine, *Paris Match*, declared my barrier idea represented France's best

bet for survival. It lost money. Like Americans, Frenchmen prefer to read almost anything than books dealing with serious defense issues, unless there's some scandal in them.)

There was little doubt in my mind that I would be picked up by some academically-oriented group in Israel, as in France, and also little doubt, since Israel was a great democracy, with a great Hebraic scholarly tradition, unlike the French they would welcome one of their own. After all, we had a common bond in our genes, wherever we were: we were fellow survivors — of pogroms, inquisitions, Hitler, Arabs, whoever, and I had even survived my mother. Surely, with this bond between us and all Jews, they would love to have someone come over and try contributing to their survival. Which reminds me of a story told to me many years ago.

It was a terrible discovery. Some scientists had conducted an investigation and determined, to their horror, that the polar icecaps had begun melting at such a rate that in six months most of the inhabited world would be under 500 feet of water. The calculations were checked and rechecked by other scientists. There was no doubt that Judgement Day was at hand. Panic set in and religious leaders around the world began preparing their flocks for the great beyond. Billy Graham, the Archbishop of Canterbury and all the other Protestant ministers implored their minions to repent, repent, repent, and prepare to meet their Maker. From Rome the Pope put forth a proclamation ordering all Catholics to Mass every hour on the hour to confess and beg forgiveness. In Israel, however, it was a bit different. The Chief Rabbi of Jerusalem issued an injunction: "Jews of the world. You have six months in which to learn living under 500 feet of water."

Shortly after I got the notion of going to Israel, I was back in Washington having dinner with a friend who was an aide to Jack Kemp (then a Republican congressman) on foreign policy and defense matters. She and Kemp, an ardent supporter of Israel, were planning a junket around the Middle East and intended to drop by Jerusalem to pay respects and, I'm sure, get some more Jewish PAC money and votes. I mentioned my idea to her. She thought it was great and said she would check around, while in Israel, on possibilities.

Upon her return she called to say she had spoken with a number of Israelis, including a senior intelligence official who also thought it was a great idea and that I would be hearing from some institute in Tel Aviv. Sure enough, I received a letter from the director, requesting a proposal of what I had in mind and my resume, which by now, with all the fame and acclaim I had gotten over the neutron bomb, was pretty impressive — a few books on nuclear weapon issues and a ton of newspaper and magazine articles, including one in the New York Times Magazine which before the neutron bomb wouldn't have put out anything I wrote regardless of the content and quality. I complied and after some weeks they wrote back saying thanks but no thanks. They were basically a scientific outfit and had no interest in sponsoring what I had in mind. Which had me more than a little baffled.

Why, I asked myself, would this intelligence official refer me to a technical outfit, when all I wanted to do was pontificate with my fellow Jews on their defense problems and write a book. That is, unless the institute was not completely academic and off in some corner had a few bright fellows working

on advanced nuclear weapon concepts. Something that used to go on in U.S. universities and institutes many years ago, where security-minded academics would spend time working on military weapon matters. (Maybe they still do, but I would be inclined to doubt that very much is going on because of the academic climate of today.) With this question in mind, I began wondering.

Did the intelligence official have in mind my showing up at the institute and, as in France, being gently worked over, as a fellow Jew, toward gleaning some technical information on the neutron bomb? Quite possible, even plausible, I thought for at this time and years before, it was common knowledge that Israeli nuclear scientists had been befriending American Jewish weapon scientists, visiting with them at their laboratories and inviting them to visit Israel. So maybe what he had in mind was my coming over and being persuaded, one Jew to another, into spilling out a few neutron secrets. Sounded pretty credible to me, but had they tried that they would have been pretty disappointed. I'm not that kind of a Jew.

Another explanation was the French one. Had they actually brought me over there and word had gotten out that Sam Cohen, Father of the Neutron Bomb (I'm sure I was pretty well known in Israel by that time; not only because of all the global publicity, including TV interviews shown in God only knows how many countries, but because I had had a long interview, with a photo of me, in the *Jerusalem Post*) was alive and living in Tel Aviv happily engaged in studying neutron bombs for Israel's defense, who knows what would have happened. Were Israel, never admitting to having nuclear weapons, to be discovered hosting (and paying) the guy who invented the neutron bomb, God only knows what repercussions would have resulted.

Whatever went on in Israel on my coming over there for a spell, I don't know. But what difference does it make? I never went. On the other hand, at that point I had suspicions galore they had embarked on a neutron bomb program. At this point in time, I have little doubt that they have a sizable stockpile of these weapons (it has been reported that they may have as many as 300 of these weapons; 300 more than we now have). Moreover, as with the French and Chinese, I have little doubt that the U.S. has helped them considerably in developing the Bomb, for the same reasons in helping the French and Chinese: to be able to defend themselves against a dangerous enemy who wouldn't hesitate to engage in another Holocaust if they won. And my guess is that we've passed on to them (and the Chinese) the results of the French sneak neutron bomb test in the Kerguelens. As I keep on saying, if I had proof positive of all this — namely, I had been part of the act or somebody I knew and trusted had passed the facts on to me, as happens so frequently between friends and former professional colleagues — I wouldn't be opening my mouth on any of this. But that's my opinion for what it's worth, and I don't think it's worthless, although my government would say so. You know what my opinion is of my government on matters like this; maybe, after having read this far, some of you might be inclined to share it.

How would I feel about the Israelis having the neutron bomb? I'd be enormously pleased, knowing that a country who holds my heart and soul is more than capable of defending themselves. I'd also be enormously pleased if the word got out, officially or through intelligence leaks, or however, that Israel had such a capability, for a number of reasons.

First, I suspect that for the first time the Arab countries would be genuinely deterred from thinking about still another attempt to do in Israel. Obviously, conventional defense deterrence hasn't worked so far; it never may considering the passions that consume that region. A credible nuclear deterrent, based on credible defensive nuclear weapons, might very well do the job.

Second, the revelation of such a deterrent ought to pave the way for an Arab-Israeli peace far more successfully than past and recent attempts. Putting the emotions of the Israeli investment in the occupied territories aside (far more easily said than done, I'll admit), the Israeli claim that giving up this ground to the Palestinians would leave them intolerably vulnerable to an Arab onslaught would have preciously few valid military underpinnings.

Third, if anything has held back the Israeli economy and unduly drained the U.S. economy in terms of massive foreign aid to Israel, it has been the size and expense of the Israeli military. Were Israel to base its defense on the neutron bomb, its defense investment could be decreased to a very substantial degree. How much, I don't know. I haven't tried to do the appropriate study to establish the magnitude of this reduction; which is exactly what I would have done if Israel had decided to have me come visit and work with them. (U.S. studies done more than 30 years ago, when such studies could be done, found that by going to a defense emphasizing battlefield nuclear weapons, our defense budget might be reduced by two-thirds or even more. These results would be equally applicable to the Israeli military.)

Finally, and most importantly as I see it, as an American whose concern for my country transcends by far that for Israel or any other country, if such conditions could be established for Israel's defense and Israel were given a free hand to defend its interests in the Middle East as it saw fit, like once again bombing political enemy nuclear capabilities, we would have the golden opportunity to get out of that region. It's been nothing more than a headache to us ever since we first started meddling around over there and on at least one occasion it's been downright dangerous, threatening to get us into a nuclear war.

"I am real!", said Alice and began to cry. "You won't make yourself a bit realer by crying," Tweedledee remarked, "there's nothing to cry about." "If I wasn't real", Alice said — half laughing through her tears, it all seemed so ridiculous — "I shouldn't be able to cry." For years after the neutron bomb first got into the public debate, I didn't know whether to laugh or cry, or both, over the ridiculous behavior of esteemed American scientists, many of whom had contributed greatly to our national defense, when I would see them distorting the issue and even lying through their teeth to let fellow Americans know how useless and even dangerous the neutron bomb was. Worse yet, and here I could barely restrain myself from crying in anger and frustration, was the behavior of the U.S. government, who was spending hundreds of millions of dollars in developing and producing the Bomb, and on studies investigating its effects and military utility, and who refused to lift a finger to publicly defend the Bomb against these outrageous charges from the scientific community. I know this is being immodest, or stupid, to an extreme, but to a first approximation I was the only one who spoke up and wrote serious detailed contradictions of these charges. Let me pick up a few of these esteemed scientists and take them to task, but first I'd like to pick up someone whose help was absolutely

indispensable to me in giving scientific credibility to the Bomb. He was the guy who made me real.

“Sure, Sam, as soon as I get the chance I’ll check out your calculations.” **Jess Marcum, senior staff member, the RAND Corporation.**

As you’ve gathered, there were some pretty bright and remarkable characters at RAND in its early years. One of them was Jess, one of the most non-Jewish Jews I’ve ever met; born and raised in Tennessee with a Southern accent thick enough to cut with a knife and the mannerisms of a farm boy who had just come in from plowing the south forty. He had been trained in mathematics and physics, and was extremely adept at both. His particular interest, however, was in using mathematical statistical theories, some of which he developed himself, to solve complicated physics problems. This called for an enormous amount of detailed calculations, using computers, which I was thoroughly incapable of doing.

At the beginning of his career, he had worked on new radar concepts, doing original work that got him an international reputation. Later on, at RAND, he applied his mathematics to figuring out how nuclear radiation transports itself through various media and became the nation’s leading authority on the subject. But don’t go getting any ideas that his interest in calculating radiation effects stemmed from the same source as mine. Nothing could be further from the truth.

The truth was that he couldn’t care less about the real world implications of his calculations, as compared with the intellectual challenge these calculations posed. When I asked him to verify my original primitive radiation calculations on the neutron bomb, his response “Sure” came partly out of our personal friendship but mainly because he was fascinated with the mathematics involved. At this juncture, no radiation expert had tackled such a uniquely different and complex problem and here was a real challenge to his ingenuity and genius. He was really worked up over the challenge, and proceeded to work out all the equations and put them in the form of a model for the computers to solve. As for the neutron bomb, or any other military matter, his interest at best was minimal, although his concern for his country’s security couldn’t have been higher. As for the results of his calculation checking mine, purely by luck (my luck) they coincided with mine, to an amazing degree of accuracy nobody, including me, would have predicted. The Bomb was now for real, scientifically demonstrably real.

So much for a scientist who backed me up on the neutron bomb, who happened to be my good friend but whose integrity refused to allow him to let friendship get in the way of honesty. Now let me turn to a couple of scientists representative of a great many more who attacked the neutron bomb, who were unmitigated crooks and liars, and sadly lacking intellectual integrity. Before doing so, however, you might be a bit curious to know more about this character from Tennessee and how he happened to become interested in making radiation calculations.

One spring day in 1951, after having had my standard lunch, cheeseburger and buttermilk, with Jess at the Goody Goody drive-in in Santa Monica, something snapped in my mind. I decided to head off to Hollywood Park racetrack, which I did every so often, but rarely on working days. Never though, in going off to the track, had I invited Jess whose moral Tennessee

upbringing held betting to be sinful and pernicious. This time, however, I asked him if he wanted to come along. Something snapped in his mind and he agreed, but only to watch. There definitely would be no betting. Off we went, leaving RAND to get along without us for an afternoon. Being probably the world's most permissive organization when it came to dealing with errant behavior on the part of its staff members, RAND couldn't have cared less.

We're at the track and I'm betting away and, to my utter amazement I'm winning. I couldn't make a losing bet. In the meantime, Jess is sitting next to me taking it all in until, after the fourth or fifth race, he couldn't stand it any longer. He had to make a bet, even if it went against the grain of his moral fiber. (Although he was no saint, he was one of the most moral guys I knew; incapable of lying, cheating, stealing, intellectually or monetarily, deceiving, whatever.) So he mustered up his courage and, probably expecting a lightning bolt to come out of nowhere and reduce him to ashes, in the next race he put down two bucks on the favorite to show. His two dollars turned into two dollars and twenty cents. He made equally conservative bets on the remaining races and won each time. When the afternoon was over I was maybe a hundred dollars richer and Jess maybe five or six. I was quite happy; he was hooked.

He now set about devising a system to beat the races, which involved getting data from years and years of the Daily Racing Form and, using his mathematical prowess, analyzing it and coming up with a new way of betting nobody ever before had figured out. (I once asked him to explain his system to me, not that I was capable of understanding it, but rather how to use it. He refused, saying he would take it to his grave. He did.) Trying to make a long story short, several months later he took leave of absence from RAND, headed for Las Vegas, checked into a cheap hotel room, and the next day began betting against the local bookies.

About a year later he became the first person in Las Vegas history to be barred from betting on the ponies; he had taken them to the cleaners. With that, God only knows how much richer, he had gotten his system out of his system and he returned to RAND to resume a respectable life. However, if he had gotten horse racing out of his system, this was not so for other forms of gambling. He had become addicted, but good, and for the rest of his life he struggled with his conscience over how much time to devote to his country's national security, to which he was totally devoted, and how much to spend at gambling, to which he was equally devoted. To Jess, gambling meant not so much making money (in which he had little interest; he bought his clothes at Sears, ate at hamburger joints and cafeterias, and drove cars until they fell apart) but to prove to himself he could win. He hated to lose, which practically never happened.

To resolve this dilemma, Jess decided to retire while in his thirties, and spend part of his time consulting at RAND and the rest figuring out new systems for various gambling games. This not only involved applying his mathematical knowledge, but when required, inventing new mathematical techniques. From this came a new technique that was equally applicable to gambling and solving radiation problems, including radiation from the neutron bomb. This double life went on for decades until gambling got the best of him and he moved to Reno to die, and did.

Needless to say, in both the world of nuclear radiation and gambling Jess became a living legend. Even though you may be a scientific legend, unless

you're an Einstein very few people know about you because very few people are interested in the kinds of things Jess did. However, if you're a gambling legend like Jess, there are countless gamblers, most of whom are compulsively unsuccessful, who dote on stories about guys like Jess. Whether you like it or not, and Jess had an extreme dislike for notoriety at any level, you're going to become famous, which happened to Jess, which had him cringing for fear that someone would recognize him and start pressuring him on how to bet. So famous did Jess become in gambling circles that other legends, such as Jimmy the Greek, sought his advice and counsel.

One guy who got to know Jess and sought his advice and counsel was someone you've never heard of. This was Al Glasco, who were he ever to have met Damon Runyan would have joined Nathan Detroit in Runyan's stable of characters in and around the gambling world. Al knew his way around gambling about as well as Tip O'Neil knew his way around Congress. He knew everyone and anyone and was, and still is, a genius in his own right in advising casino owners how to run their operation. One casino owner he advised, a good personal friend, was Donald Trump.

One day, at Glasco's advice, Trump brought Jess to Atlantic City, at an obscenely high consultant rate, to get advice on how to deal with a filthy rich guy from Japan who had just beaten, at baccarat, one of Trump's casinos to the tune of \$7 million. Trump was desperate to get his money back from this guy and put Jess in full charge. After hours and hours of studying his betting habits, Jess figured out that like many a compulsive gambler he was betting far more on the basis of his emotions than on his odds. Meaning that if you're going to be lucky you're going to be lucky; but unless you cheat, which the house was very carefully watching for, sooner or later you're going to lose your shirt. Which is why most casinos stay open and many guys who pick up their paycheck in Hoboken Friday afternoon go to Atlantic City and come back to Hoboken Sunday evening flat broke.

So now Jess sits down and makes some calculations based on the Japanese guy's quirky betting habits and tells Trump how he can get his money back and then some, where some \$12 million would be involved. If Trump accepted Jess's strategy, the odds would be five-to-one in his favor. "But suppose he's lucky and wins?", Trump, who's getting a little panicky, asks Jess. "If you're that afraid of losing with the odds so heavily in your favor, you shouldn't be in the gambling business", Jess replies. Trump caves in to Jess's admonition and the game starts.

It went on and on for about three days, practically non-stop, with poor Jess, in the habit of getting 9 or 10 hours of sleep regularly and getting really grouchy if he didn't, standing there quietly watching. Little did the crowd around the baccarat pit realize that this little gray-haired fellow not only knew more about gambling odds than anybody in town, or the country for that matter, but was the guy who had turned the neutron bomb concept into a reality. Naturally, or I wouldn't be relating this tale, Trump picked up \$12 million, Jess picked up his huge consultant fee, thousands and thousands of dollars, and headed back to Reno to die, in a \$20 a night hotel room.

One last Jess Marcum story, please. For this will give you even more insight into how this guy's mind worked than the Trump affair. This one has to do with Jess's money, not someone else's. Shortly after I introduced him to horse racing and he had figured out his system, he got up one morning, picked up the

newspaper, turned to the sports section and on the racing page noticed a horse running in the feature race at Del Mar, a track just north of San Diego. Something seemed familiar about this horse. Jess got out all his charts, looked up its record and the records of the other horses in the field, and made some quick calculations. Short of getting stuck in the starting gate or throwing the jockey, there seemed no way the horse could lose.

With that, he finished the rest of the paper, and his breakfast, called RAND to say he wouldn't be in that day, piddled around until the bank opened, went down to the bank and took out \$50,000 in cash (probably most of his account), drove down to the airport and got on a plane that shuttled between L.A. and Del Mar. For several races he either didn't bother to get up to bet, or bet two bucks on some horse that attracted his fancy. Comes the feature race, he goes up to the betting window and plunks down \$50,000 to show on the horse he had picked that morning.

Now in those days, California state law demanded that no payoff be less than ten cents on the dollar. Jess's calculated odds on this horse were like a hundred to one it would come in the money. So from an odds standpoint he had a pretty good bet going, far better than what Trump had going against the Japanese guy.

Okay, they're off and running. Jess's horse, ahead from wire to wire, wins by God only knows how many lengths. Jess walks up to the pay window, picks up \$55,000, the same amount as if he'd bet to win, gets on the airplane, goes home, sticks the money under his mattress, and the next day deposits it in the bank. When he told me about it, I asked him what he would have done had he lost. He looked at me, shrugged his shoulders and told me what he would have told Trump: "That's what good gambling is all about; make good bets. If you don't know how to, don't."

"I find this technically very intriguing, but we could never use such weapons against Asians." **George Kistiokowsky, Science Advisor to President Dwight Eisenhower.**

Now before tearing into Professor Kistiokowsky for bias, blind ignorance, and worst of all a betrayal of scientific integrity, which has made possible all the technical wonders of our age and immeasurably improved our lives, let me say some nice things about him.

First of all, at Los Alamos during the war, when I first laid eyes on him, he was magnificent and even indispensable in the effort. (I remember when he broke his leg in a skiing accident and was out for some days, there was such a panic at the lab that General Groves tried to forbid any more skiing by senior staff members.)

Second, and you can ask Bennie Schriever about this, he contributed enormously to our national security effort after the war. Among other things, he was instrumental, as a member of a panel set up by Trev Gardner, in establishing the basic feasibility of the ICBM and help convince Eisenhower to give the project the green light and top priority.

Third, he was an idealist who detested totalitarianism and totally dedicated himself to peace and disarmament. He was a highly respected and even revered human being. But this isn't to say he was impeccably honest. He was on scientific matters; on military matters where he disagreed with some new weapon, he could be as dishonest as they come, the way I looked at it.

The above remarks by Kisty (as his friends called him, like Oppenheimer's friends called him Oppie) were made in his White House office, in 1959, after I had finished my standard spiel on the neutron bomb. I was really flattered that such a great scientist would be so intrigued with my concept; he offered not one technical objection. On the other hand, I was really bothered hearing for the umpteenth time this political tenet, which smacked of intense religiosity, about not repeating the original sin of bombing the Japanese by bombing other Asian countries, which is primarily what I had in mind for the neutron bomb. Of course, I had heard this objection many times before and would hear it many times again. However, coming from a guy who had few, if any, credentials in political science and foreign policy, and could walk into the President's office at the drop of a hat and, with the backing of the great majority of the U.S. scientific community, that wielded an enormous amount of political clout at that time, advise him against the neutron bomb for these non-technical reasons, this really worried me. Not that I could do anything about it, except to complain to some congressman or senator I knew, who wouldn't do anything about it. However, I wanted to satisfy myself on the veracity of this conventional diplomatic wisdom, that ever again nuking an Asian would bring down upon us the wrath of the world, especially the Asian world.

I went off to see a political scientist acquaintance of mine at RAND, Abe Halpern, who specialized on Asian societal and political attitudes, told him what Kisty had said and asked him what he thought about it. Abe told me he had been looking into this matter of how Asians would react if Americans once again nuked them. He had found that to a good approximation there wasn't any official attitude held by an Asian government and as for the people they had so many other things to be concerned with — like their rice crops being endangered, the commies taking them over, what have you — matters like these never entered their minds. He was more than a little irritated to hear about my experience with Kisty and others of the same ilk, and even irritated with some of his RAND colleagues whose expertise was not Asian attitudes but nevertheless seemed to know all about them. On the other hand, Abe was a wise person, wise enough to realize that nothing could be done to counter these myths; myths are myths like God is God — either you believe them or you don't, but you can't prove them one way or another. (Look at American attitudes toward using tactical nuclear weapons in the Persian Gulf war, which would have meant using them against Asians, even if they didn't look like them. When we first declared our intentions of forcing the Iraqis out of Kuwait, practically no decent American was in favor of nuking them out. I was, with neutron bombs. However, as the moment of truth approached, with all the profound military experts — ex-chairmen of the Joint Chiefs, ex-Secretaries of Defense, and other assumedly very knowledgeable people — predicting a long, bloody expensive war, attitudes began changing and shortly before the war began close to half the American people favored getting the war over with in a hurry using battlefield nuclear weapons. Had the predictions of these great experts come true, I daresay that Bush, under enormous public pressure, wouldn't have hesitated to use nuclear weapons if he thought for a second the alternative might be another Vietnam or Korea and the loss of his job. But that's all history, except to say that when a President is backed up against the wall and his countrymen want him to use nuclear weapons, even though some Asians don't (maybe), he's going to use nuclear weapons. No president is

stupid enough to hold some groundless ideology over his chances for reelection.) As I've said time after time, if you're looking for logic and factuality to explain our nuclear policy formulation — don't.

Twenty or so years go by, Jimmy Carter is now President and a huge global debate over the neutron bomb is going on. Kisty holds a press conference and tells the media he considers the weapon infeasible and claimed that at his urging, when he was Science Advisor, Eisenhower had killed the project. Strange he could be so forgetful as not to remember our meeting in the White House when he expressed no reservations over feasibility. Stranger yet he had convinced Ike to kill the Bomb at approximately the same time a few key guys in Congress and the AEC had compelled the Administration to give the Bomb top priority and make plans for testing it that the Kennedy administration, despite its repugnance for such weapons, was unable to cancel. Or maybe Kisty wasn't all that forgetful; he was just plain dishonest. And I feel no shame nor do I have any apologies for having said this about an otherwise great American.

Around the time of his press conference, Kisty wrote an article on the neutron bomb in MIT's very prestigious journal *Technology Review*. In his article he waxed technically on the Bomb's effectiveness against enemy tank crews. Real simple to shield out the radiation, claimed the great scientist. All you had to do was put some plastic bags, a few inches thick, filled with water and a thin sheet of neutron absorbing material over the tank crew compartment, and the neutron intensity would be reduced by a factor of five. To quote Kisty, the effective range would be "reduced drastically". Ergo the bomb that was infeasible (which actually had tested out beautifully a decade or so earlier, which he should have known having such an intense interest in the subject) was worthless to boot. Strange thinking — that something that won't work at all won't work very well — for a man of such great scientific repute, trained to think logically and rationally.

By the time this article came out, all sorts of radiation experts, including my pal Jess Marcum, had gone through the most exhaustive calculations imaginable to determine how effective tank shielding might be. I dare say that their collective expertise exceeded by far that of Kisty. Needless to say, having a paternal interest in the subject, I was very much aware of this business, which allowed me to make some back of the envelope calculations on the veracity of Kisty's bold assertions. Naturally, they didn't hold up; the truth being that at the outside the range might be reduced 15 or 20 percent by his water bags. So instead of wiping out tank crews at a distance of a thousand yards it might only be eight or nine hundred yards, hardly a drastic reduction. But I'm not through with this crook yet.

Granted he was a scientific genius, I doubt he was very much of a military genius. Accepting his proposal to shield out the radiation with bags of water, I calculated what weight of water would be required to either drastically reduce the effectiveness of the radiation or wipe it out altogether. Having done that, I consulted with tank experts to find out what this would do to the tank's operational capability on the battlefield. The military judgement, which neither Kisty or myself were competent to challenge, was the capability would be hugely degraded; for the simple reason that it takes two sides to tango in armored warfare. All that weight of water on the tank turret would make it extremely difficult to swivel the turret very effectively and your tank would wind up a sitting duck for the enemy tank. With consummate ease, the enemy

would win the tank battle. At the same time, also with consummate ease (using tanks, artillery, aircraft, helicopters, you name it) the water bags easily could be shredded, the water would pour out, and there goes the radiation shielding — restoring full effectiveness to the neutron bomb. If you want to play arm chair general like Kisty, before giving a military opinion you ought to talk with some military people who conceivably might know more about their business than you do.

When I read his article I could have written to Kisty, with a copy off to the editor of Technology Review, chastising him, and the editor for letting such a sloppy piece get out with no serious review beforehand. It would have been a waste of time. Based on another experience I had with that journal, it would have been fruitless. If I was lucky, I might have gotten an innocuous reply thanking me for my interest in the article, but certainly no retractions. I could have written to one of my pals in the Pentagon, or better yet Livermore who made the Bomb and you'd think would want to defend it. Also a waste of time, for a number of reasons — the main one being that the government really didn't care that much about the Bomb even though it was supposed to be produced. So I did nothing except to get a little more aggressive than I already was, which accomplished nothing except to raise my blood pressure.

I've gone out of my way to say that Kisty was a great American, a truly great scientist and truly dedicated to his adopted country (he was born in Russia). As great and patriotic as he was, I wish he had been more dedicated to the truth on certain defense issues — especially those involving nuclear weapons. However, I can assure you that in demonstrating such behavior as I've been complaining about he had lots of company within the U.S. scientific ranks. For his splendid contributions to science and national defense, Kisty received the highest award the government can bestow upon a civilian, the Presidential Medal of Freedom. He deserved it many times over, but had qualifications for the medal included intellectual integrity, he should have been passed over. Which brings up the government's integrity in bestowing such high awards. I would guess that by now you have a pretty good idea of what I think of the government's integrity.

Had I known Kisty as well as many of his fellow scientists, some of whom were my friends and of the highest integrity, maybe, as a human being, I would have been more sparing of him than I have; or better yet, having taken him to task technically and militarily, not have said such unkind words about him as a person. I'm sure my friends who knew him well, if any of them are still around to read this, would tell me I've acted shamefully. Maybe I have but I can't get myself to admit it. And I certainly have no intentions of apologizing either. Which many of you would say is shameful and maybe you're right. But I feel it's up to me to decide on that, not you. I stick with my decision.

"The production of neutron weapons is probably as immoral a concept as human minds have yet devised." **J. Garrett Allen, Professor Emeritus at Stanford University and Founding Member of the Radiation Research Society.**

While I was at Los Alamos during the war, when I was busy calculating how neutrons would bounce around and be absorbed in a small ball of plutonium about the size of a baseball, others were doing actual experiments to check on my calculations. Two of the experimenters became acquaintances of

mine and we would interact every so often. These two guys were Louis Slotin and Al Graves, two of the nicest guys I've known. Unlike most other scientists who could hardly wait to get back to their universities once the war was over, they elected to stay on — believing, I'm sure, they were contributing to their country's security.

During the summer of 1946, at Bikini atoll in the southwest pacific, we conducted a couple of tests (we would have conducted more if more plutonium were available, but it was in too short supply to permit this) using the same bomb that was dropped over Nagasaki, that I had worked on. To make sure the bombs would be in good working order, Slotin, Graves and others conducted a series of tests to see that the plutonium would behave itself properly, that the desired chain reaction would occur. This involved lowering a shell of neutron-reflecting material over the plutonium ball and observing how the fission rate, and thus the generation rate of neutrons, would increase as the shell came closer and closer to the ball.

Old saying "Familiarity breeds contempt", and the more familiar they became with this experiment the more contempt they had for their own safety, which was not exactly 100% guaranteed. Sure enough, one day in May of that year, there was an accident and the plutonium became what we call "supercritical", meaning the chain reaction ran amok, releasing a flood of neutrons into the immediate vicinity. Poor Slotin, who was mainly responsible for the accident, was standing right next to the equipment and before he could remove the reflector (a heroic deed, to put it mildly — most guys would have gotten away from the equipment as fast as possible, to reduce the radiation they were receiving) he received a God-awful dose of neutrons — mainly in his hands and arms which were closest to the plutonium. He died nine agonizing days later, the first Jewish victim of an atomic bomb. Despite valiant efforts by the local medics, who were expert in the science of treating radiation casualties, there was no conceivable way of saving him. With respect to his physical appearance after the accident, the best analogy I can think of off-hand is a kid who's playing around with a large box of matches and accidentally sets it afire. Like Slotin, his hands and arms are going to be terribly burned — the kid from the fire, Slotin from the neutrons, sort of like overexposing yourself to the most powerful X-ray machine on earth.

As for Al Graves, he was standing maybe a couple of yards away, far enough to avoid getting burned but not far enough to prevent getting a pretty hefty dose of neutrons, more or less uniformly over his body, to a level where there was a respectable chance he might die were medical attention not quickly available. Insofar as the uniformity of radiation exposure over Al's body, to a fair approximation it wasn't very much different from what might have happened had he been exposed to a neutron bomb. If you're wondering what Al went through, let me quote from the official medical report.

"Upon admission to the hospital — an hour after exposure, the patient (who had experienced about 400 rads) was in good physical condition...The patient was calm and had no subjective complaints...Although he felt well on admission to the hospital, the patient vomited once several hours later. In the course of the next twelve hours the nausea disappeared and the patient's appetite returned. There was no diarrhea, or other gastrointestinal disturbance...For several days after exposure the patient felt weak and tired and appeared prostrated but was

otherwise asymptotic...The patient's strength improved steadily and he suffered no untoward reaction to being allowed out of bed several hours a day after the tenth day...On the fifteenth day the patient was discharged from the hospital...Approximately ten weeks after exposure, the patient's strength and endurance were back to normal and he returned to work. Since this time he has led an entirely normal life, working hard and engaging in outdoor sports."

Please forgive me for being a little technical, but some of you may be wondering about this 400 rads of radiation Al received. (For a kiloton neutron bomb this dose would be received some 1200 yards from ground zero.) At this level of exposure, for an average person of average weight and in reasonably good health, there's close to a fifty-fifty chance that if you don't get prompt and proper medical attention you may not be long for this world. However, if you're on the nuclear battlefield and you get this dose, whereas you will not be in for the agony poor Slotin went through, and die to boot, one thing is for sure: you're not going to be a very effective combat soldier for a while. Your efficiency will have deteriorated to a degree where enemy soldiers who have not been affected by nuclear or conventional weapons will have a huge advantage over you toward doing you in. In other words, for a while you're not fit to fight. Chances are that before your commanding officer orders you back into combat, the war will be over. (No study I've ever seen indicated that a long drawn-out battlefield nuclear war was at all likely, if for no other reason that the extent and rate of casualties would be so high, that armies could not go on fighting very long.) But the point I'm trying to drive home here is that in no way will a neutron bomb victim go through anything remotely resembling what happened to Slotin. (For those who might go through what Al Graves went through, in no way will they experience on practically a daily basis what I experienced at the hands of my mother.)

On the other hand, to be honest, there will be many victims who will indeed suffer as I did as my dearest mother sought to keep me alive and healthy. Almost 30 years after Al Graves went through his discomforts, not agonies, there was a radiation accident at an industrial plant where one of the workers picked up a dose of 600 rads. (Had he been exposed to a neutron bomb burst, this would have occurred about 50 yards closer to ground zero than a 400 rads dose.) The poor guy really went through hell, roughly what I experienced as a tot. Here's a quote from the official account of his reaction to the exposure.

"In June 1974, a radiation worker at an industrial plant in New Jersey accidentally received a whole body dose of approximately 600 rads...The victim exhibited prodromal symptoms (specifically nausea and vomiting) of acute radiation sickness, commencing some 30 to 60 minutes post-exposure. During the 2 ½ to 3 hours that elapsed between the exposure and the victim's arrival at the hospital emergency room, he experienced 10 episodes of vomiting. He was described as concerned, but not unduly anxious, about his condition [being the calmest individual in the hospital emergency room]. In the days following his admission to the hospital, his white blood cell and platelet counts steadily decreased. During the 22nd to 35th days post-exposure, his blood count had dropped so low that only [transfusions] maintained his life. After the 35th day, his condition

improved rapidly; he was discharged from the hospital on the 45th day and subsequently returned to full-time work."

Had this guy not been given the medical treatment he received almost certainly he would have died. Were he a combat soldier, well within a hour he would have been rendered inoperative and knocked out of the war. (Had he been 1000 yards from ground zero, chances are that he would have been so traumatized that within minutes he would have been incapable of any effective performance — like loading and aiming a cannon, firing a high-tech missile, and doing other tasks that call for precision and coordination — and not too long after that died from shock to his central nervous system.) However, one way or another, in no way could his condition be compared with that of Louis Slotin. Miserable — sure; but terribly burned, as might have happened had a napalm bomb ignited near him — no way.

In November 1981, a few months after Reagan announced he would stockpile neutron bombs, this distinguished medical scientist, J. Garret Allen, an acknowledged expert on radiation injury, who also happened to be one of the attending physicians when Louis Slotin was hospitalized, wrote an article describing in sickening terms the horror of Slotin's experience. Granted that it was indeed a terrible experience, what I found atrocious was that Allen's article claimed that Slotin had endured agonies comparable to radiation exposure to a neutron bomb, concluding that those who die from nuclear radiation effects on the battlefield will suffer deaths "almost as agonizing to those looking on as to the victims themselves."

As for Allen finding the neutron bomb so immoral, well he's entitled to his opinion, an opinion shared by millions of his fellow Americans. As for paying responsible attention, as a respected responsible medical scientist,, he didn't. For whatever his reasons, he was blindly prejudiced toward the Bomb, so blindly as to fabricate an accounting totally divorced from factuality. Kisty, in showing his prejudice, at least went to the trouble, as a competent scientist should, of making some calculations which I assumed he was capable of making. Allen, in showing his prejudice, did nothing except to equate a terrible event that did take place with one that couldn't possibly happen. Kisty, in asserting the ineffectiveness of the Bomb, at least displayed some moral behavior in not damning mine. Allen, who made out the Bomb to be vastly more effective than it actually is, condemned me as one of the most immoral guys in history for inventing it. Despite his undoubtedly great contributions to radiological science, and to humanity as well, he strikes me as a person having little if any moral decency.

"Parnell tells Otto, the troubled punk hero of the film (Repo Man, marvelous movie; if you haven't seen it check it out and stick it in your VCR), in anguished tones that his mind is eroding. He reveals that he had worked on designing the neutron bomb, which drove him mad, after which his project was canceled, and he was lobotomized. The neutron bomb, Parnell says, destroys people and leaves buildings standing. '...Everyone's dead. It's so immoral, working on the thing can drive you mad.'" **John B. Mack, Professor and Chairman of the Executive Committees of Harvard's departments of psychiatry.**

This quote is from an article written in 1981 by a distinguished medical scientist, an expert on the human mind, not his anatomy. I find his psychiatric

observations of me more than a little disturbing; I find his assessment of my moral depravity offensive and downright reprehensible. I would like to believe that such a renowned expert on the human psyche would at least want to meet and know a little bit a guy whose psyche is so demented. (Of course, he might have been right; but before passing judgement on me, if he didn't want to meet me, I gladly would have met him, he could at least tried to understand the issue a little.)

In his article, Professor Mack went on to describe the morality of those who make a living repossessing automobiles from those who can't make payments. "The moral code of the Helping Hands Agency, the gang that 'repossesses' cars, stealing them from 'dildos who don't pay their bills', parallels the ethic of the neutron bomb. Cars are not to be damaged but people die meaninglessly, or are murdered without a thought to obtain a profitable object. No one seems to care much."

Now this one really got to me, for my older son, a man of the highest ethicality and dedication who recently was given an award naming him Reserve Officer of the Year in Los Angeles county for making a record number of drugs arrests leading to convictions, used to be a Repo Man. That is, until trying to repossess a car in a tough neighborhood in L.A., where murder is the order of the day, he suddenly founding himself looking down the barrel of a gun. "Guess I made a mistake", Paul told the gentleman, and walked away from him, and the next day his job.

When I read Professor Mack's article I sent him a long piece I had written dealing with the morality of the Bomb, not its inventor, taking him to task for placing opinion before fact. He never responded, which I thought discourteous, and until very recently he had more or less passed out of my mind. Then, all of a sudden, he came back in. But good! Not that I'm trying to make him out to be a psycho, but this guy seems to have acquired a hang-up over extraterrestrials. He seems to have what one might call an ET complex.

In his 1981 article, in describing the movie Professor Mack developed his thesis about me and the neutron bomb on the premise that ETs and neutron bombs seem to be one and the same. They both emit radiation that destroys human beings (in fact they're evaporated) but leaves material objects intact (all that's left of an irradiated highway patrolman are his boots). But then that's show biz and well-done movies can convince all kinds of people (maybe even psychiatrists from Harvard) that make believe and fact are one and the same.

Recently, Professor Mack has taken to counseling poor souls who have been abducted by ETs. He's been all over national TV (prime time, no less) and in newspapers (The Wall Street Journal, no less), where he describes the experiences of the abductees, the psychological and emotional trauma they've gone through, which lasted for years. From all this PR, one might get the idea that he really thinks these kinds of things have happened, and has given his name and phone number out on TV so that those who have had such awful experiences but repressed them might suddenly remember in watching him and have someone to come to for help. He's expressed fear that should enough people realize what happened to them mass hysteria could break out.

I think it's wonderful that Professor Mack had dedicated himself to helping ET victims, but I'm a bit concerned that so moral a person might possibly not have all his senses. But then he seems concerned neither do I. Maybe we're both a couple of mental misfits. On the other hand, coming from Harvard,

almost by definition he has to be a brilliant psychiatrist and psychiatrists have to be the best experts on matters of shame and guilt. I've freely confessed to my shameful treatment of people who deserved better. I wonder if Professor Mack ever has had a feeling of shame over the way he treated me. I think he should have and if he hasn't I'd suggest he go off to a good psychiatrist. As for me, it's too late; I'm lobotomized.

*"Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe."*

From the poem *Jabberwocky* in the "Looking Glass" book Alice came across while conversing with the King and Queen.

As you've gathered, I'm not very much of a religious type. I don't read the Bible, or the Koran, or any religious tracts for that matter. The only time I go to church or a synagogue is when an offspring of a good friend of mine is getting married or bar mitzvahed. In which case, particularly if the denomination is highly orthodox, I suffer through all the rituals and ceremonies, and worst of all the infinitely long prayers whose significance I can't comprehend any more than the above poem. To me it's all jabberwocky. So what do I do when I'm trapped into these things? I do what I always did in class; I sit there and let my mind wander all over the place. I daydream, I fantasize, I torture myself by going over and over in my mind some recent indignity I've suffered, I do everything but listen. My behavior under such circumstances is the same as when some one, whose feelings I don't want to hurt, forces a book on me; I put the book in my lap, try, out of guilt, to start reading it, and 10 or 20 minutes later discover I'm still on the first page; while staring blankly at it, I've been thinking about what my little mind desires.

From the time, in the late 1950s, when the neutron bomb debate first hit the fan, until the issue ran out of gas after Reagan backed out of it by refusing to deploy them overseas and Bush decided to destroy them after having said earlier that under no conditions would he use them against the Iraqi army even if they used poison gas against us, the attitude openly expressed by the U.S. clergy was almost uniformly one of condemnation. I don't recall a single minister, priest or rabbi of high rank in his religious order speaking up publicly in favor of the Bomb. Particularly virulent in their damnation were many American Catholic bishops who declared the Bomb ran against God's will.

For example, in 1968, the Catholic Bishops of America issued a paper damning the weapon on the following basis: "Nothing more dramatically suggests the antilife direction of technological warfare than the neutron bomb; one philosopher (unidentified, why?) declares that the manner in which it would leave entire cities intact, but totally without life, makes it perhaps the symbol of our civilization. It would be perverse indeed if the Christian conscience were to be unconcerned or mute in the face of the multiple moral aspects of these awesome prospects." As irreverent as I may be, it would be grossly unfair for me to make nasty remarks about these men of the cloth, for I have no doubt they genuinely and piously believed the above statement. However, I have some problems with this statement.

I can't for the life of me figure out what it says. Maybe that's my problem. However, insofar as the technical, military and moral content of these remarks are concerned, I fail to see any relationship between them and the technical, military and moral factors (as Catholic dogma professes to see them) affecting the matter. To me, and probably Lewis Carroll as well, it's pure jabberwocky. Putting aside the technical and military facets, which I've gone to some length to explain and which I doubt the good bishops ever bothered to check into, allow me to turn to the morality of the issue. After all, morality is primarily what these guys are supposed to concern themselves with, to preach it to their flocks.

Over the first several centuries of Christianity, efforts were made by Catholic scholars to formulate a code of morally acceptable warfare (excuse the oxymoron). Out of this came the theory of Just War, that theoretically still prevails. The most important tenets of Just War theory include all the items that decent Americans of any religious denomination should accept: the right to defend against unwarranted aggression; the desire to keep the battle to the battlefield; the necessity to protect non-combatants and their societal fabric through discriminate means; the requirement to keep the response to aggression as proportionate to the level of aggression as possible; and other obviously decent objectives.

Needless to say, since Just War theory was accepted by allegedly civilized Christian nations, rarely has it been practiced to any respectable degree. To the contrary, and this goes for the United States as well as any other nation, the history of conventional warfare has been mainly a gross violation of the theory, and this includes the recent war in the Persian Gulf where despite claims by the Bush administration our forces were adhering to its tenets, we broke nearly every one of them. (I'm glad we did, even though the hypocrisy considerably bothered me; for otherwise the war might have gone on much longer with many U.S. casualties. However, I would point out that if instead of building up a force of a half million soldiers, hundreds of fighter and bomber aircraft, and all the ships at sea, we had quickly dispatched, say, a hundred neutron bombs (a small fraction of our arsenal of these weapons, and let our Arab allies do the ground fighting, we could have gotten the Iraqis out of Kuwait in short order, sparing Kuwait of much of the horror it went through, and driven to Baghdad, while erasing the Iraqi army, and done away with Saddam Hussein and his cronies. To say nothing of saving the tens of billion dollars the war cost and using the money, if we were so inclined (which I doubt) to improve the lot of enormous numbers of human beings.

What would the American bishops who signed off on the above-mentioned paper have thought about this? They can answer for themselves, but I doubt very highly they ever stopped to think about the neutron bomb alternative to the conventional weapon onslaught we conducted, with its gruesome, and truly immoral, consequences. (To be fair, there have been a number of U.S. Catholic bishops who haven't shared the views expressed in the paper. A couple of them were Cardinal John O'Connor of New York, with whom I had some very rewarding correspondence in which he came down on my side, and Archbishop Philip Hannan of New Orleans who wrote to me saying "I wish to congratulate you on your scientific work as well as your willingness to defend the neutron bomb as a morally sound weapon." However, I don't recall them ever coming out publicly in defense of the Bomb.)

“You stupid shit!” were almost the last words that Dick Cella ever uttered. He had just taken off in his fighter plane from a south Pacific airbase in World War II and pushed or pulled the wrong thing in the cockpit and found himself out of control and heading for the ground. Which he met rather violently and for the next several months reposed in a hospital bed as broken up as a human being can be and still live. A fellow combat pilot of Dick was Bennie Schriever, with whom he formed a close friendship that goes on to this day. It was through Bennie that I met Dick and it was through Dick that I met a ranking non-American Catholic priest, Pope John Paul II. If you’re curious as to how this happened, here’s how.

Upon getting out of the Air Force after the war, Dick became a reserve officer. Having an advanced degree in aeronautical engineering, it was only natural that he take on technical assignments during his active duty tours. Having an advanced degree in aeronautical engineering, and being a career Air Force officer, it was only natural that Bennie take on technical assignments, which he did until he finally retired. Being good friends, it was only natural that when Dick was on active duty, whenever possible he would work with Bennie and it was in this connection, back in the 1950s, when I was working with Bennie, that I met him. We became friends immediately.

It goes without saying that after I invented the neutron bomb I discussed it with Dick, who like Bennie took quite a liking to it. He also, around that time, took quite a shine to an Italian contessa he had met. So he married her. Ivana, before coming to the U.S., because of her illustrious family, knew practically everyone of note in Rome, including God only knows how many higher ups in the Vatican. One of them was Giovanni Cheli who was in the Vatican diplomatic corps, who I was to meet and besides Ivana was to be responsible for one of the most incredible episodes of my life. It was so incredible as to momentarily shake my disbelief in God because I discovered that if He did indeed exist as Christians saw him, He believed in me.

In the spring of 1978, I got a call from Dick Cella, who when he wasn’t working with Schriever was running a restaurant in Manhattan. This was at a time the neutron bomb debate had reached peak intensity and Dick wondered whether I could come back to New York to meet some friends of his and his wife, saying it was kind of important to do so. I took him at his word and came back.

That evening, I got together with a dozen or so Italians at Dick’s restaurant, not having the wildest idea why I was there and what lay in store for me. Two of the Italians, incidentally, were Catholic priests, both monseignors, one of them being Cheli who at that time was in effect the Vatican’s ambassador to the United Nations. (His formal title was Permanent Observer of the Holy See to the United Nations, Apostolic Nuncio.)

During most of the dinner I sat rather mutely, listening to all the Italians (Dick was of Italian descent and spoke the language flawlessly) speak Italian. This didn’t bother me, for when I lived in France many a time I would attend a lunch or dinner where everyone spoke French although practically every one was fluent in English; but then, the food was superb. The same held for these

Italians and Dick's chef had cooked up a marvelous meal, all-American, so I was more than content to eat and pretend to listen.

Finally, the table was cleared and it was coffee and brandy time. At this point Dick got up and shouted, he had to, for attention. Having quieted them down, he now informed them in English that this guy who had been quietly sitting around the table was the Father of the Neutron Bomb. He was sure that after all the hullabaloo over the Bomb and all the conflicting opinions over it, they might want to get the facts right out of the horse's mouth. So if they had any questions to ask or reservations to express, I would be more than willing to address them. I allowed I was.

Hardly to my surprise, most of them had no reservations. Dick and Ivana moved in fairly conservative circles and it figured that their friends, like most conservatives at that time, would be sympathetic toward the Bomb. They had a few questions about how the Bomb worked and things like that, which I endeavored to answer to their satisfaction. The two priests, however, were a different breed of cat. They had reservations galore and pounded me, in a not too saintly manner, with questions that were more in the way of accusations. I began feeling like a Sephardic Jew during the Spanish Inquisition. Naturally, their questions and accusations were directed toward the moral aspects of the Bomb and while not a guy of high moral integrity I did try to defend the Bomb on their moral grounds, which, strangely enough, I knew a bit about, thanks to a friend of mine who was a Roman Catholic and had been one of the first AEC commissioners, who had infused some Just War dogma into my heretical mind. (I thought it made sense; a lot of sense, because it sounded so much like what Bennie Scriever had pounded into me. In fact, I brought the two of them together to discuss the issue of discriminate tactical nuclear weapons. They got along famously.)

Finally the inquisition was over and there was a period of silence as everyone reflected on what had been going on. Taking advantage of the silence, I decided that turn about was fair play. They had gotten everything they wanted out of me; now I wanted something out of them. I spoke out and said "Now that I've answered all your questions, I have one I'd like to ask of you. Do you think the neutron bomb should be produced? Let's take a vote. I'll go around the table, starting to my right, and ask each of you what should be done."

I began the polling. Yes, yes, yes, yes, yes, no, yes, yes, yes, and now we come to the two priests who were sitting next to each other. They both voted yes. When the poll had been completed the Bomb had won hands down.

I asked myself what all this had proved, if anything. Here were a few grains of human sand on a huge beach who mainly liked the Bomb. Well, so what, even if a couple of them were Catholic priests. After all, some ten years earlier a vastly larger number of American Catholic bishops had expressed moral revulsion over the Bomb, so what difference did it make if a couple of Italian monseignors, who had no right to tell my country what to do with its nuclear arsenal, favored producing it?

Dick Cella, however, had another opinion and when the discussion around the table had shifted to other matters, in Italian once again, he came over to me and asked me to accompany him to his office. When we got there, he closed the door, looked at me and said "Sam, you have just made the most important conversion of your life. Before you met Cheli he was dead set against the

neutron bomb. Now he's for it, thanks to you. I guarantee you something is going to result from this. Let's wait and see." He was dead right.

A few weeks go by, by which time, being wrapped up in the glare of publicity and having a job, which I was beginning to detest because of the Carter administration antinuclear policies, to worry about (my company, like all defense contractors, was playing ball with the government and had little use for the neutron bomb and considerable apprehension over me because of my outspokenness on the issue, where all I did was criticize the government), I had pretty well forgotten the Italian affair. Then one day the phone rings. It's Dick Cella, inviting me back to New York again. Cheli had called him, saying that his boss, Archbishop Agostino Casaroli, the Vatican's foreign minister, was coming to New York to address the United Nations Disarmament Conference and desired the pleasure of my company for dinner at the Vatican Mission in Manhattan. Obviously, Cheli, who worked for Casaroli, had gotten hold of him, told him about meeting me and wanted him to meet me as well. I was flabbergasted.

A couple of days later I show up with Dick at the Mission where I'm introduced to Casaroli, a few other priests (naturally, including Cheli) and some foreign policy experts and scientists from Fordham University (a fine Catholic institution). We sit down and I find myself between Casaroli and a young priest, Fr. Brian Hehir, who informed me he had received his doctorate in international relations from Harvard (which automatically had me on guard since I regarded that great font of all knowledge as a font of nuclear dissemblance). If you're wondering what we had to eat, it was some of the best Italian food I've ever had.

At the beginning, everyone was conversing, in English, and I was exchanging pleasantries with Casaroli and the priest from Harvard. However, after a while Casaroli fell silent and I was left with the priest who wasted no time getting into a discussion on nuclear policy and strategy. Now you might guess that getting a doctorate in international relations from Harvard, like getting one in psychiatry, requires a pretty high level of intelligence. Not necessarily as high as that of Henry Kissinger, who got his doctorate there and taught there, but still pretty high. Indeed, the young priest was a pretty bright guy and since I had been in the business long enough to know what kind of stuff they taught at Harvard, it was obvious he had learned his nuclear catechisms well. By Harvard's standards, he had more than earned his degree.

The trouble though was that was all he had learned: catechisms. His innocence/ignorance of the real world of nuclear weapons and policies, how the policies really had been arrived at, and the difference between a nation's policies and how nations behave once things get out of hand and wars start, was something to behold. However, by now I had gone through too many fruitless arguments on these matters to want to start another one, especially in front of his Excellency, a man officially designated by the Pope to be an ambassador of peace. So I remarked that I didn't necessarily subscribe to his views but I didn't choose to disagree. He was entitled to his opinions and I respected them, even if I didn't. But he wasn't about to end the discussion. And neither Casaroli or anyone else around the table was about to enter into it; they were all listening, real hard.

Now the Harvard disciple goes into a diatribe on the dangers of battlefield nuclear weapons, again giving arguments I had heard time and time again. I

didn't choose to respond in any specific way since it would have been tantamount to arguing against his religious tenets, the last thing I cared to do around this gathering. Finally, he couldn't stand it any more, put aside his strategic religiosity and launched into the neutron bomb, giving out all the disinformation I've been reporting here. It was apparent that the good father had little of the fatherly love for the Bomb that I had, and since the dinner obviously was planned to be able to focus on the neutron bomb, not broad policy and strategy, I decided it was time to act less charitably toward him. So I asked him a direct question: "Father, why don't you like the neutron bomb?"

His answer was equally direct: "Because it's immoral." "Why is it immoral?", I asked. "Because it's a nuclear weapon.", he replied. "Why are nuclear weapons immoral?", I asked. And now came the answer I was hoping to get: "Nuclear weapons are vastly more destructive than conventional weapons." Now I had him.

I proceeded to explain to him and the others, as I've explained to you, what the neutron bomb was all about, summing up by saying that the only thing "nuclear" about this weapon, as compared with other nuclear weapons, was that it derived its effectiveness and discrimination from nuclear reactions. I could have added, hypocritically in my mind, that it was God, not me, that ordained the Bomb to be nuclear and that it was also God who established the precepts of Just War theory I assumed he religiously subscribed to, but I couldn't get myself to do that. Instead, I reacted emotionally and intemperately, and shamefully, for I never doubted the sincerity of his beliefs. I informed him in no uncertain terms that I held his views on the neutron bomb to be, in effect, immoral, grossly immoral. Where did he get off implying that I was, in effect, an immoral person for having devised and espoused a weapon that allowed a country to defend itself in a fashion having practically none of the grossly immoral features of conventional weapon defense he and his Harvard professors seemed to espouse?

The father flushed in anger, as I had been doing, but did not respond. At this point, Casaroli finally opened his mouth to say he had just flown in from Rome, was dead tired, and badly needed some sleep to get ready for his UN speech the next day. He thanked me so much for coming, and left. So did the priest from Harvard, without thanking me. The others diplomatically stayed around for a while, I guess to let me know they weren't as offended as the Harvard guy was. Some weeks later I received a medal from his Holiness, Pope Paul VI. I doubt if I got it for stopping beating my wife.

About a year goes by. One day while I was in Washington on some business, I got a call from Dick Cella. It was elevation time at the Vatican. The new Pope, John Paul II, had promoted a number of bishops to cardinalcy, one of them being Casaroli, who was also to become Vatican Secretary of State, Number Two on the church totem pole. A contingent from the U.S., headed by Cheli (who by now had been double-jumped in rank to archbishop), was heading off for the affair and I had been invited to join up. (Not invited was Father Hehir.) Could I drop whatever I was doing and get up to New York right away to join the party. Had Dick given me a bit more notice, I could have raced off to a haberdasher and gotten a respectable suit. All I had was a seersucker that nice Washingtonians, but not nice Romans, wear in the summer and a trashy suit that looked older than it was, about 20 years old. But there was no

time for that. I stopped what I was doing, participating on a Pentagon committee, put myself on unannounced vacation (and unpaid to stay honest) and took the first shuttle out of Washington National Airport. A few hours later I was on another airplane heading for Rome.

We landed. Dick and I checked into a hotel, freshened up and headed off for the Vatican. There we met Cheli who escorted us to Casaroli's Vatican apartment where he officially greeted us as his guests. We chatted amiably about almost everything but nuclear weapons and neutron bombs, after which Cheli escorted us around the Vatican showing us what I had seen 20 years back when I first visited Rome as a gaping tourist, plus a number other places tourists normally weren't allow to gape at, where those in attendance gaped at my seersucker suit. The greeting formalities over, Dick and I left, strolled around the Eternal City for a few hours and spent a pleasant evening with some of his wife's friends and relatives. As for my comportment around the dinner table, it was identical to the first hour or so at Dick's restaurant; I sat there happily eating, saying nothing, while everyone else chatted away in Italian.

The next morning was investiture time for the new cardinals. Off to the Vatican again, where we were met by Cheli who escorted us and the rest of the U.S. delegation to a huge auditorium where the ceremonies would take place. As we walked in and to our seats (way up front, probably due to Casaroli's impending status), I had the feeling I was attending a U.S. presidential nomination convention, sans flags, banners, buttons, etc., representing delegations from the 50 states. The various contingents from the various countries whose archbishops were about to be promoted were assigned seats in certain sections of the auditorium and the place was abuzz with excitement.

On stage were all the cardinals from all over the world, plus the cardinal-designates. This was the first time I'd ever seen a cardinal, let alone all of them; and in seeing all this clerical brass together had me totally dumbfounded. Suddenly a tremendous roar went up. The Pope was coming on stage. When the cheering had died down, the ceremonies began and one-by-one, their contingencies whooping it up, the cardinals-elect rose, knelt at the feet of his Holiness (now John Paul II, Paul VI had died not too long after bestowing the medal on me), and received their scrolls. Casaroli, about to become the most eminent of their Eminences, was first to be called up. Out of appreciation and admiration for him, I stood up and yelled as loudly as anyone else. It was quite a shindig, better than going to a Super Bowl, which I once did when the Oakland Raiders, coached by my old friend John Madden, won the title.

The ceremonies over, Dick and I got into a car, driven by Cheli, and went off to a Catholic orphanage for a lunch to be given in Casaroli's honor. (It was one of the most terrifying experiences of my life. Until then, I was convinced my wife was the world's worst and most competitive driver, but Cheli put her to shame. For the first time I found myself wondering that if there were a Heaven, I'd have a better chance of getting in being done in by a man of God than by my wife. I've rarely met anyone as diplomatic as Cheli, which figured, he being an accredited diplomat; but behind a wheel he was one of the most undiplomatic guys I've ever seen, cutting in and out in front of others. At any rate, thank God, not Archbishop Cheli, we made it to the orphanage.)

Preceding the lunch, there was a reception attended by family members and friends of Casaroli and a number of dignitaries, including quite a few cardinals who I would imagine were closer to him than the other cardinals just promoted.

Naturally most of them were Italians, but there were also a number of diplomats I would imagine Casaroli had gotten to know during his many years in the Vatican diplomatic corps. Maybe it had to do with my uneasiness over being around all these prelates, plus my sour experiences with the U.S. State Department, but I felt sort of out of place at the gathering and angled off to the bar hoping for a good stiff vodka martini, my nightly relaxation before dinner. No hard liquor, so I had to settle for a Campari. Cella noticed my unease and joined me off to the side to gab with me and help me relax. I felt a lot better, but not for long. Up comes Cheli, who also had noticed my reticence to mix in with the guests. He takes me by the arm and tells me he would like to have me meet some of his associates. The first guy was a little Italian cardinal of such timid demeanor that if it weren't for his priestly finery I would have guessed him to be a downtrodden clerk in a Charles Dickens tale. "Your Eminence, says Cheli, in English, "may I introduce you to Sam Cohen. He is the Father of the Neutron Bomb." To put it mildly, the cardinal was taken aback. He stood there in some state of shock, probably wondering what sin he had committed to be introduced to someone from Hades. I was really flustered, praying for a double martini to gulp down. And Cheli stood there smiling beatifically. Finally, the cardinal recovers and says to me "You must be a very terrible person." What could I say, besides nothing. However, I didn't have to respond because Cheli steps in and tells him "No. Your Eminence, I can assure you Mr. Cohen is a highly moral person." I'm glad he didn't add "who loves his mother." With Cheli's reassurance, the cardinal and I struck up a conversation of a sort; but it was apparent he was very uneasy. So was I. This introduction by Cheli was repeated a number of times with other cardinals present, who seemed a bit more saintly in not bedeviling me than the first one; but nevertheless were somewhat stunned to find themselves in my presence.

Okay, it's lunch time and we go into the orphanage mess hall. A hostess escorts me to my seat just in front of the dais where Casaroli and a number of his cardinal pals were seated, where my place card read "Prof. Sem Cohen". Now I can't honestly say that I appreciated the academic elevation, since professors never had any meaning for me, I ignored them when I went to school and mostly detested them afterward for their antinuclear views. On the other hand, being called "Sem" really warmed the cockles of my heart. When I was a tot in East L.A. (when all my miseries were in my intestines), the old Jewish men on the block would come up to me, pat me on the head, say "Semkelleh, how's my little Semkelleh today?", and beam — I wouldn't.

Seated next to me, to my astonishment, was a fellow American Jew, who introduced himself to me as a publisher of medical books who for reasons I forget had become a good friend of Casaroli. He was only interested in talking about himself and his strong views on issues of the day, including birth control where he proudly told me he differed sharply with Casaroli but they still were able to be pals. Not once did he inquire about my background, which was fine with me, I was so grateful to have some one at the table who spoke English. Poor Cella, for whatever reasons — I'm afraid because he was considered of lesser importance than the publisher and myself — was at another table considerably to the rear.

After we're through eating, and I still hadn't been able to get a word in sidewise to the medical publisher, one of the cardinals on the dais rises and gives a speech praising Casaroli — in Italian. By this time I had been on such a

heavy diet of almost everyone speaking Italian I could pretty well figure out what he was saying, half of it with his hands. Then another cardinal gets up and goes through the same act. And still another one, and another one, until the only one who hadn't said anything was Casaroli. Now it was his turn.

He gets up, thanks his colleagues for their kind remarks, with great humility expresses his gratitude for the honors bestowed upon him and his great appreciation to his many distinguished guests, maybe a couple of hundred, who have come from so far and so wide to be with him at this wonderful moment. All this in English, which had me more than a little curious since most people in the room did not normally speak English and maybe didn't even understand it.

As for his honorable guests, he wished he had time to introduce them all and speak about their accomplishments and all that, but his time was very limited. He had an appointment with His Holiness in a little while. However, there were two guests in the room to whom he wished to give special acknowledgment. I was the first, receiving some accolades as a man of science dedicated to the truth, half true at best, and all those things my father would have loved to hear about "My boy Semkelleh, the professor." You have to believe me, I was stunned, and deeply moved, almost to the point of getting a little misty eyed. I'm as human as the next guy, I think, and when I get recognition and appreciation, at any level let alone at this one, for what I've done, it really gets to me. You can, or maybe you can't, imagine my feelings over this great honor.

I had to stand up, which wasn't easy, and identify myself, which I found embarrassing to the point of excruciation. Now it's the next guy's turn, who turns out to be the Jewish medical publisher, who receives a few kind remarks from Casaroli and that's the end of the encomiums. Casaroli leaves to see the Pope and a lot of people are staring at me, especially the publisher, wondering who I am. Obviously, no one in the room, correctly so, had ever heard of a scientist of any repute by the name of Sam Cohen. Neither had I. However, someone at our table seemed to know who I was — how, I don't know, unless at the reception one or more of the cardinals had passed on to others what Cheli told them about me. He leaned over toward the publisher and said, in English: "You do not know who Mr. Cohen is? He is the Father of the Neutron Bomb." The poor publisher, who was feeling pretty good about himself after Casaroli's remarks, now had a look of indescribable bewilderment on his face. For the first time he was speechless.

I've often wondered why, from a cast of a couple of hundred, practically all of them Catholics, Casaroli chose to pick out two Jews for special mention. Strange, unless you stop to think that 2,000 years ago his boy was one of ours.

It's my last day in Rome (Cella had left the night before) and early that morning I grabbed a taxi and headed off to the Vatican again. There I met Cheli and a few others who had been invited to attend a special Mass given by the Pope honoring Casaroli. A few dozen people were there, including some of Casaroli's relatives whose attire indicated they had just left the vineyard and didn't have time to change), some of his guests (I don't recall seeing the publisher), and some of his clerical pals.

We gathered at a small garden chapel outside the Pope's quarters, waiting for him to appear. Being the infidel I was, I made a beeline for the back row of

seats. (If lightning was going to strike, I wanted His Holiness, whose Church had been so hospitable to me and given me recognition I never dreamt of getting, as far away as possible.) I plunked myself down and sat there feeling very uncomfortable, despite the incredulousness of the occasion — a not-so-nice Jewish boy like me attending such a highly intimate Mass given by Numero Uno himself.

I wasn't to sit there very long. After a minute or so, Cheli comes up to me and leads me to a front-center seat, which must have been arranged for in advance. Now I'm really uncomfortable.

A few minutes go by and the Pope appears, stands a few feet in front of me and conducts Mass, in Latin. Had it been Italian, being practically fluent by now, I might have tried listening or at least paying attention. But I did neither and, totally out of control of my senses, sensibilities and the ability to act with human decency, I began fantasizing — about what, it's none of your business, but it had to be the most shameful performance my demented psyche ever had put on. If there is a God and a Heaven and a Hell, this was one God-given opportunity for Him to have condemned me, with no chance of redemption, to a very warm hereafter.

I'd prefer, and expect, oblivion when I pass on; but I felt so ashamed of myself that I half-wished I would be consigned to Hell, where such behavior is expected of you. Waxing Freudianly, sure I've gone through my share of fantasies, unmentionables you couldn't even dream of having. But I've never, to the best of my recollection, felt any shame over the doings of my uncontrollable unconscious. We'll settle for some of the shameful things I've consciously (maybe) done, in my shabby behavior regarding others. All I can say is that to this day, I feel a deep shame over the papal garden experience. However, confession comes on the cheap, at least for me. I prefer to apologize, to one and all and His Holiness, and I'm not begging for acceptance, nor do I expect exculpation. I don't deserve it.

(But let me ask you: Had you been in my place, not understanding in the slightest what was being said, what might have gone on in your dirty little mind? You can tell me if you wish, and being a good security risk with respect to keeping confidences, you can rest assured it will go no further and there's no way I'll be angry with you. Or suppose you're a devout American Catholic who doesn't understand Latin because your priest long ago began sermonizing in English. Had you been in such close presence to His Holiness and felt as honored as I did, do you really believe you could have kept such a tight rein on your dirty little mind and thought about nothing but sweetness and light kind of things, regardless of all the nagging personal problems which may have been plaguing you every day? If you couldn't and behaved as shamefully as myself, and certainly sinfully (maybe at the cardinal level, which very well may have been my case), would you blurt this out, in full detail, the next time you went to confession, if you worked up the courage to go? Please don't answer these questions: They're at a level of security classification I would never want to have.)

The Mass over, the Pope leaves the altar and starts mixing it up with the audience. I'm standing there off to the side, wondering what to do with myself, when Casaroli comes up to me and with a look of total innocence on his face (God forgive him) asks me if I had met His Holiness. Having just engaged in this awful spate of fantasies, I wasn't sure if I could face up to meeting him,

which Casaroli knew full well I hadn't. However, to fib and say that I had met him and didn't wish to pull him away from the other guests, was out of the question. So I gave Casaroli an honest answer and said no I hadn't met His Holiness. Whereupon he took me by the arm and led me to the Pope, introducing me in glowing terms as the Father of the Neutron Bomb. Unlike the little cardinal a couple of days before who had practically trembled in the presence of Satan, the Pope was one cool customer. He didn't bat an eyelash.

We shook hands, he expressed his pleasure over meeting me. I expressed mine. Then he looked me squarely in the eye (I'm not so sure how squarely I looked back at him) and asked me "Mr. Cohen, I trust you are working for peace?" What could I say. I told him I was, as best I could, in my own way, and then poured it on by telling him how much I appreciated his own efforts for peace. (Were I barbarically honest, and felt impassioned enough, I could have told him his efforts to swamp the world with human beings were probably, in my opinion, working more against peace than his efforts to promote it. But one, even myself, just doesn't do things like that.) We chatted a few minutes more, about what I don't have the faintest recollection, being in such a daze at the time, and then I left to go home.

I'm only human and not entirely self-effacing. If you think for one second that after I left the Vatican, I didn't relate my meeting the Pope to all kinds of people, you're dead wrong. Of course I did, which reminds me of a joke I heard some 30 or 40 years ago.

Once upon a time there were two neighbors in Beverly Hills. (The joke was told to me by a friend of mine who lived there and naturally wanted to give his fair city a boost, as if it needed one.) One (and this is exactly the way the joke was told to me) was a nice Jewish boy by the name of Sam Cohen who (as I've just been doing) was always bragging and name-dropping about one thing or person or another. The other was Pat O'Reilly, a nice Catholic boy, whose personality was the diametrical opposite of Sam's, but for his own masochistic reasons every day would gab with Sam over the fence, doing ten times as much listening as talking, as he suffered through Sam's boasting.

One day, in the course of conversation, Sam let drop the fact that he was a longtime friend and personal intimate of the Pope, who always was seeking his advice and counsel on worldly matters. This was more than Pat was willing to take. He exploded in high indignation, letting Sam know this was the worst lie he ever had heard and was willing to bet any amount that Sam, as usual, had fabricated the whole thing. "I'll tell you what", said Pat, "here's the bet I'm proposing to you. We're going to Rome and while we're there you're going to have to prove to me what you just claimed. If you can't, and you know you can't, you've got to pay for the whole trip — first class airfare, first class hotel, finest restaurants in town, nothing but the best. If you can prove it to my satisfaction, I'll pick up the tab. Otherwise you do. Okay, wise guy, you want to put your money where your mouth is?"

Poor Sam. He didn't want to bet with his good and old friend Pat, for fear of hurting the relationship; but Pat was so insistent that Sam finally gave in. The bet was on. Off to Rome they go, first class airfare. In Rome they check into the classiest hotel in town and that night dine at the most elegant restaurant in town, and off to sleep. The next morning, they have breakfast, during which Sam says to Pat "From now on you're in my hands and we'll be doing what has

to be done to decide on the bet. Pretty soon you'll see I was telling you the truth."

They get into a taxi (we hope Cheli wasn't driving) and go off to the Vatican and Vatican Square where a huge crowd is milling around, obviously waiting for the Pope to make an appearance on his balcony. Sam turns to Pat and says: "Now I want you to stand right here until I return", and disappears into the crowd. Fifteen or twenty minutes go by; O'Reilly is really getting apprehensive, he's never seen a Pope before. Finally, out walk two guys, the Pope and Sam, arm in arm, beaming beatifically. Everyone bursts out into a tremendous roar; that is, everyone but O'Reilly who's standing there transfixed, unable to do anything but stare in stark disbelief at the balcony.

Pat remains mute and transfixed until suddenly he receives a rude jab in his ribs. He turns to see who's committed the offense. It's some Italian guy who asks him "Hey, who'sa dat guy with the white cap next to Sam Cohen?"

Well, one beautiful morning in June 1979, the guy standing next to Sam Cohen was Pope John Paul II. Too bad he didn't invite me to make an appearance with him on the balcony.

5. So Nu?

I'm a lousy Jew, but beneath the surface I'm really Jewish. I can't help it. My parents spoke Yiddish around the house when I was a kid, but only when I wasn't to know what they were saying. The only Yiddish words I know are what I picked up on the street; vulgarities and obscenities, plus one other, the most delightful word in any language I've heard spoken: *nu*, pronounced noo.

Some meanings of nu are: "Nu?" (So what's on your mind.) "Nu?" (How are things going?) "Nu?" (Anything happening you want to tell me?) "Nu?" (You got a publisher?) "You're writing your memoirs? Nu?" Nu, nu?!" (Shit or get off the pot.) "So your wife left you. Nu? (I should be so lucky.)

I've got a much longer translation of the title of this chapter, which goes something like this: "Okay, you've been throwing a tantrum over how rotten the commies have been, how rotten the government has been, how rotten you have been, how rotten others have been, and what's rotten about practically everything else. You're telling me that as a result of all this rottenness we're in a terrible mess on our national security and we don't even understand why, let alone knowing what to do about it. So nu? You've got maybe a magic formula for fixing everything up so we don't have to worry any more after all the worries you've given us?"

No, I don't have a magic formula. However, I've got some hunches on what we should be doing to save our hides in a still nuclear world that will remain so certainly through my lifetime, and probably yours even if you're a lot younger than I. Not only will there be nuclear weapons around, hopefully a lot less than there are now, but maybe a lot more. Despite international agreements prohibiting their use, it can be expected that increasingly insidious chemical and biological weapons will be with us into the interminable future. So will drugs supplied by our Latin American and Asian friends who we've been so intent on being friendly with and even willing to send American troops to fight for their interests we consider to be ours. And heaven only knows what else. If history is any guide, these weapons, and I consider drugs to be the most insidious weapons threatening us today, not only will be around for a long while, but will be used, one way or another, against us. History, however, is a product of men's minds and if we are to be hopeful about our future, at the same time we're going to have to consider changing how our minds have been working on matters of war and peace.

Not only are these threats to our security likely to persist, but if we're going to go on as we have in collecting meaningful intelligence information about other countries, and I'm afraid we will, our knowledge of many of these threats will be slim to none. Not only will we continue to know precious little about foreign military (or paramilitary) capabilities that seriously threaten us; I'm afraid that with all the deceit, corruption and greed that governs so much of the development of our major weapon systems, we won't even know very much about ourselves. (Look at the lies the Bush administration, starting with the President, told us about the performance of the Patriot anti-missile missile, the Tomahawk cruise missile, the "smart" bombs, and other weapons used in the Persian Gulf war. I distrust these guys so much I don't even believe the revised figures and deeply suspect these weapons performed even more poorly than admitted.) The Pentagon lies to us and the Congress, to get the weapons it wants; the Congress lies to itself and to us to get weapons that get jobs for

constituents; and the President lies to everyone on the need to produce more new weapons that can't rationally be justified that will temporarily prop up the economy but run the national debt further out of sight. War is a rotten costly business in the long run; so is building many new weapons we really don't need.

With such antics going on and, barring a miracle, continuing to go on, who in his right mind would have the audacity to tell his fellow countrymen what rationally can be done to lead ourselves out of this wilderness. Want to know who? I'll tell you: me. As Harvard's psychiatry professor Mack has pointed out, I'm lobotomized, which gives me a license to rush in where angels fear to tread. After all these years observing our national security scene, my motto has become: Leap before you look, because all the looking under the sun won't make it any easier for you to leap. In fact, the more you look, if you're at all honest with yourself, the less likely it is that you'll leap. The trouble is though, that in so dangerous a world you have to leap; you can't go on doing what we've been doing. Something has to be changed; not so much our way of doing things, I'm afraid we're stuck with that, but our way of thinking. In worrying about the future of the world after the atomic bomb was revealed to the world, Einstein noted "Everything has changed but human nature." Very profound, and I don't see human nature changing any time soon, if ever, especially the propensity of human beings, especially Americans, to go to war. But maybe, despite human nature, we can begin thinking in different ways to deal more realistically in coping with these threats and more realistically enhance our security.

There's an old joke that goes something like this: This well-heeled guy proposes to his girl friend that the two of them go off on his yacht for a weekend cruise. To prepare himself against undesirable eventualities, he checks into a drug store and orders a batch of condoms and a bottle of Dramamine. The druggist comes back with the order and asks him "If it makes you sick, why do you do it?"

For a lot of people, especially those directly caught up in them, where soldiers and civilians are slaughtered en masse and towns and cities are bombed and shelled into rubble, wars are a really sick business — except they keep on fighting them. (Look what's been going on in the world since George Bush declared the beginning of a New World Order after the Persian Gulf war — it's sickening.) For us Americans who haven't been caught up directly in a real honest-to-gosh fracas since the Civil War, we like to claim it's a sick business, but in getting into war after war after war, you'd never know we really feel that way. Maybe we really don't. Many anthropologists, zoologists, sociologists, psychologists, and the like long have conjectured that it's in the nature of the human beast that he just plain likes to fight wars, for whatever reasons. Besides these intellectual types, at least in the U.S., nobody seems to think very much about the problem and fewer yet give a damn, which is why any President, if he's politically shrewd enough, and most are, can convince the people it's necessary to fight a war someplace in our national interests. If he wins the war, great! At least for a while, sometimes a pretty short while if he's hurt the economy in the process. If he loses, he's either kicked out of office by being denied another run, or reviled for a long time.

At the risk of being called a pacifist appeaser (but at least not a commie appeaser, since allegedly there are far fewer commies left to appease these days), I happen to be one of these guys who after years of going along with the crowd now does give a damn about our getting into wars and wonders a lot why and how we manage to keep getting into them. Now I certainly don't claim to understand these whys and hows, nor I suspect does anyone else, including those in academia who from time to time, have made big publicity splashes by giving explanations. All I know is what I read and see: we keep on getting into wars and our policies, ever since World War II, have said we have to keep it up. They haven't said why, despite the sorry track record; it's just that we have to do it because of some vaguely stated chauvinism about national interests that nobody understands, but blindly supports when the chips are down and we're going to war. Some call it patriotism; I call it idiocy.

When I visited Korea in 1951, while the war was still going on, I took a trip off to a U.S. airbase. I was introduced to the base commander, Col. Francis Schmidt, a name I remember because he was one of the most unforgettable human beings I've ever met. I told the colonel I was there to get some understanding of the war as it was actually being fought, but did not bring up the subject of nuclear weapons, as I had promised not to do. He invited me to lunch to meet some of his deputies, a bunch of highly decorated fighter pilots (including the leading ace of the war) all gung ho about what they were doing, proud as peacocks to be doing it and not at all interested in talking with me about anything but yesterday's missions. They couldn't have cared less what the war was all about. Great! They shouldn't have. Then he had one of his deputies steer me around the base so I could see what they were up to, ask questions, and get opinions on how they would run the show if they were in charge. I was on their side. When I returned to check in with Col. Schmidt, he asked me if I would join him in his quarters that evening for dinner and a private get-together. Of course, I accepted. I've just been bragging about my micro tete-a-tete with the Pope. Fantastic, but my evening with Col. Schmidt was infinitely more meaningful, infinitely more meaningful than my Vatican affair.

We got to talking, over a few drinks, about what I was up to and he asked me what my impressions were on the war. I related to him what I've related to you earlier. Then he opened up and gave me his impressions. He didn't like the war one bit. He didn't understand why we were there, fighting a war we obviously weren't going to win, and even if we won he didn't see what we were going to gain from it. He had distinguished himself in World War II as a fighter pilot and thoroughly understood why he was putting his life on the line in fighting for his country, knowing his country had demanded the unconditional surrender of the enemy. It was a war that had to be won. But this one really had him bothered.

"Sam", he told me, "tomorrow I'll be sending many of the pilots you've met on missions over North Korea. I expect some of them might not come back and I'm going to have to write to their wives or parents telling them how heroic their husbands or sons were and how proud they should be, and how proud I am. Of course, I'll tell them that these pilots died for a noble cause. But I just don't see what's so noble about it. I thought after we won the last war it was the last war. Yet here we are a few years later fighting another one and losing lives

over something that's none of our business. Every time I send these men out and some don't return, I can't tell you how guilty I feel." And so on into the night for hours and hours.

I can't tell you how deeply the colonel moved me with his opinions and philosophies on war. I've never forgotten that evening and the impression it made on me. It didn't turn me into a pacifist or a military isolationist on the spot. I was too blindly chauvinistic and anti-commie for that to happen. However, he did plant the seeds for the opinions I'll be venturing here in answering the question: So nu? Needless to say, I never mentioned my discussion with him to anyone until the war was over, at which time, as he had said he would do, he put an end to his military career — out of guilt, dismay and maybe even some revulsion.

In the mid-fifties, while in the Pentagon, I dropped into the office of my friend Harvey. He was on the phone. As I stood there waiting for him to get off, I noticed a book on his desk having the title "The Sexual Cycle of Human Warfare". Of course, being as prurient minded as the next guy, I picked it up and began leafing through it, curious what it might be about, hoping to see some really titillating stuff. I didn't. What I did see, however, before my friend hung up, fascinated the living daylights out of me, for it appeared to be a very serious, even scholarly, attempt to explain an underlying cause of war: SEX.

Harvey is now off the phone and looks at me in disgust, telling me to put the book down. He tells me it's the most boring thing he's ever seen — not one accounting of mass rapine, sodomy, whatever your scatological mind might think up. He had checked it out of the Pentagon library with high hopes of pleasantly occupying his otherwise unoccupied time and was aggravated over having to waste his time returning it. As for myself, I jotted down the title, the author, and the publishing house. The author was a guy named Norman Walter, the publisher was in London.

After a lot of calling libraries in Los Angeles, none of whom had the book or ever had heard of it, I was able to get the publisher's address and write off for a copy, COD if that was required. Several weeks later the book arrived with a bill for so many pounds, forcing me to find out the exchange rate so I could send them a U.S. money order. I began reading it immediately and can truthfully say it was one of the few books I've ever read through almost continually from start to finish. It wasn't easy reading, which normally turns me off and due to my ignorance in certain subject areas there were parts I couldn't understand. But it was intriguing beyond compare, despite its academic, overly academic, format — references, footnotes, bibliography, all that stuff I never could stand when I was forced to read academic books for one reason or another.

The book dealt with matters of sex and war. However, there was nothing clinical or sexually graphic and nothing about military strategy, tactics or weapons. On the sexual side it dealt broadly with matters in the realm of genetics, psychology, psychoanalytic theory, anthropology, sociology and everything else having to do with the behavior of human societies during peace; and how all these factors combined to periodically, averaging once a generation, propel a country into war. On the war side, it dealt mainly with how human societies behave during war and why wars, sooner or later, come to an end. Now, I have to point out that the wars he was addressing in his discussion

were real honest to gosh wars that have gone on over history, not these limited wars the U.S. has felt compelled to fight since the atomic bomb came along. But the periods of peace he described, with their attendant societal conditions, applied to any period, before or after the Nuclear Age set in. He admitted, indeed pleaded, that the existence of nuclear weapons demanded that we change our ways of settling disputes — real or imaginary; and indeed we have, but so far rarely satisfactorily, preparing for the next one even though the last one worked out miserably.

Not only did he dwell on the human species, but he picked up on “lower forms of life” (a term I’ve always found biologically debasing, considering the history of human comportment) as well — animals, insects and other species that exist through sexual reproduction and exist in their own particular societal framework, to develop his thesis. I found the similarities he described between the superior human species, as God is alleged to view them, having souls and all that, and lower forms of life that don’t qualify for hereafters, remarkable when it comes to intraspecie wanton slaughter of each other every once in a while.

I have no intention of trying in any scholarly fashion (I’m not a scholar) to explain Walter’s thesis. Rather, I’ll try and explain it by focusing on my own country, one that in its recent history has been disposed to fight, as often as possible, good old fashioned conventional wars, being scared to death (for good reasons, never reasoned out) of fighting nuclear wars and (in the most unreasoned way) ruling them out.

Let’s start at a time right after there’s been a whopper of a war we’ve been involved in, where we’ve conscripted millions of young men to fight someplace else, hundreds of thousands of them are killed and wounded, and it cost us a lot, hundreds of billions of dollars. In this century, we’re talking about World Wars I and II, Korea and Vietnam. Whether we win or lose (my definition of losing a war is one we don’t win; we used to win wars until Korea came along, when we were well into the Nuclear Age and our policies and strategies began rebuking Douglas MacArthur’s famous declaration “There is no substitute for victory.”), when the war is over there is a period of grief and recrimination over the young bucks we sent over there who got shot up and went through all kinds of hell, and the politicians, reacting to the national guilt and revulsion over the carnage, fall all over themselves saying “no more wars.” And get reelected by the people who sent them to Washington to declare war, something we’ve stopped formally doing and we’ve been paying the penalty in being unwilling to win any longer.

Okay, Johnny comes marching home again (and again and again), he falls in love, gets married and raises kids. That’s the American way, at least it used to be; believing in family values and all those wonderful things that keep our society glued together. If you want to become President you sure better pretend to believe all this — even if you cheat on your wife and can’t stand your kids. And if you become President, you’re in a position to undo all these allegedly nice things by getting your country into a war for reasons you’ll never understand, except you think all these nice people you represent will back you to the hilt, and they will if you don’t start losing.

Now let’s narrow down the broad happy picture of our country at peace to a nice God-fearing family in some nice average community someplace in the country, where dad is gainfully employed, mom keeps the household going and

bakes apple pies, and the two teen age kids, sis and bud, do their homework, stay away from drugs, and generally stay out of trouble. Comes Thanksgiving time, grandpa and grandma come over, so does Norman Rockwell to immortalize the occasion on the cover of the Saturday Evening Post. Sure makes you proud to be an American, to know that such communities exist by the thousand and thousands around the country. (Don't even think about the ones that don't.) Makes you patriotic as well and more than willing to sacrifice anything to protect our wonderful American way of life.

Now if it weren't for sex, this wonderful family, this wonderful community, and our wonderful country wouldn't exist. No copulation, no people — unless you're Jesus. But what about this sex business? Besides dad and mom having at it to beget sis and bud, has anything else been going on? Well, yes; all sorts of things that we all know about because in this enlightened day and age that's practically all the media writes and talks about it. (Not so when I was a kid, when you had to find out the hard way, in the street, and when you did you didn't dare discuss it at home, at least not in my house.)

Within this wonderful family, chances are that bud has sexual cravings for mom and sis, which he can't help, but understands, for both mysterious and obvious reasons having to do with incest, he'd better keep his yearnings to himself. If he's not too wracked with shame over his incestuous feelings, he'll go into fantasyland whenever he can. If he's like I was as a teenager, and even younger, he'll daydream a lot, sometimes getting caught showing the most embarrassing physical manifestations he can't control. And when he's asleep, with no holds barred, sky's the limit on what his little unconscious can dream up.

As for dad, hopefully he's got a good sex life going with mom, but whether he does or doesn't, he's been sensing ever since his son was knee high to a grasshopper his more than affectionate feelings for mom, and sis too for that matter. This really bothers dad. What may also bothers dad, if he can't control his conscious thoughts and fantasies, is that he has more than affectionate feelings for sis and heaven only knows what he dreams about when his mischievous unconscious brings sis into the act. Not only that, but the bud across the street may openly feel that way about sis, perfectly fine in our "civilized" society but dad may find all sorts of reasons to take a strong dislike toward this young punk, who may be one very nice kid. And the other bud's dad may feel the same way about our bud. And so on and so forth. Feel free to come up with as many permutations and combinations and variations on this theme as you wish. You'll probably do better than me if you feel less shameful than me.

Time marches on and these sexual urges and tensions increase. The urges become greater on the part of the young bucks who want sexual gratification in the flesh as well as in the psyche, and the tensions, both conscious and unconscious, between the bucks and the dads, whose sexual urges are on the decline, which bothers them, but still there, and are more inclined to lust after shapely young gals than their pudgy wives, becomes greater. As the community expands, because there are too many young bucks around whom the older guys resent, primarily for sexual reasons (although it's easy to get displeased with some young punks who ride noisy motorcycles around the neighborhood while you're trying to relax watching TV, drive like a maniacs with their radios drowning out a Mozart concerto you're trying to enjoy, using obscenities so

often you get the idea that's all the English they know, and so on) these tensions expand. A general feeling of unease and sometimes even rage increasingly pervades the community, and the older guys not only are frustrated over the behavior of these punks — not to imply they're all punks, but a lot of them are — but feel envious and even threatened. Multiply this community across the nation and to an appreciable extent the country has a very unsatisfactory situation on its hands — a situation it senses deeply but hasn't even the most shallow understanding of what the problem is. Moreover, except for a few scholars who generally tend to disagree with each other, practically no one is at all interested in giving serious thought to the matter, let alone look for an explanation. Whatever angst the older guys, the pops, feel they blame on the economy, that their marriage is falling apart (why?), that their kids aren't doing as well as expected, whatever. But one way or another, for whatever reasons, tensions are building up in the country that increasingly demand release or relief.

Now we come to the leaders of our country, the most powerful of whom are politicians who when it comes to understanding and dealing with human beings are, in my opinion, far superior to academicians of the highest intellect whose professions focus on human and societal behavior. They sense that the country is in an ugly frame of mind and consciously or unconsciously, or both, they look around for an outlet through which the tensions can be released. If the tensions are high enough because there are too many rambunctious young bucks around upsetting the older guys, whose influence on the politicians is far greater than that of the youngsters, they don't have to devise a solution through enacting new legislation that almost never works; they simply look around for excuses to get them out of society, as many as possible.

The solution is real simple: prepare for and look around for a war to get into, work the masses into a state of (seemingly) patriotic frenzy, and send a million, or two, or three of them out of the country — where they're under ironclad military control — hopefully not to return, dead or alive, for a long while. In other words, as Norman Walter saw it, the most effective way of relieving this nation-wide sexual tension is to have a massive expulsion, or as he put it, ejaculation of young men, and their sperm, out of the country. Like any male orgasm, and so far we've had a male dominated society, it's really great while it's going on. You're flushed with pleasure and excitement, you behave like a blood-crazed animal while the slaughter is going on, the gorier the better. You're proud over these heroic youngsters who formerly you couldn't stand, and when they get killed you're even prouder yet over what they have done for their country, even if you don't know what they've done. When the war, better yet the orgasm, finally is over, especially if the carnage has been god-awful, now you can relax and if you don't feel too guilty about losing your boy you proudly sent over to be killed, you can get on with your life.

Not only is the war great sport for the papas back home, but while junior is overseas some place, if you're inclined to mess around with the young ladies junior used to date, they're all that much more available. The sexual competition and the tensions that go with it has largely disappeared while junior is being shot up. The greater the carnage, the more available the young ladies, having their own sexual urges, will be. And when the war is over and Johnny comes marching home still again, the cycle starts repeating itself; its frequency depending on how long the war lasted and how many young bucks were killed

or maimed. But keep in mind that compared with countries like Germany, Japan and Russia, who have suffered horribly in past wars, our urge to shorten the cycle had been pretty great. Since World War II, where we suffered by far the least casualties, we've been in war after war, and still have a policy of military intervention that practically ensures our getting into another one in the not too distant future. As Walter would explain it, we simply haven't let enough blood in these limited wars we've been fighting and the folks back here haven't gotten the biological relief from sexual tensions that keep building up.

So much for one man's theory, as I've tried to interpret it, of what brings about wars. Speaking for myself, I found his book not only fascinating but quite persuasive. Which figured since, as you've noted by now, I'm one of these guys who believes that most of us know not what we do but do it anyway; and I can't think of a better example to prove this belief than our continuous compulsion to prepare for and go to war. After reading Walter's book I discussed it with a number of my military acquaintances, all considerably older than myself who had achieved the rank of colonel or general and had seen war in the raw, with all its passion and emotion. All of them had at one time or another reflected on their profession and on war, and some of them were intrigued with Walter's thesis.

One of them who disagreed was Bennie Schriever, who was a very philosophical guy and thought about issues of war and peace far more than many of his military compatriots who held to standard meaningless explanations like human beings are naturally aggressive or greedy and willing to risk their son's life to protect their economic security, and all that nonsense. Bennie, however, who had done a good deal of reading on the subject, thought war was basically a struggle for territory. If you're a good guy, like we are, fight to keep the bad guy from taking over your territory or that of your friends. If you're a bad guy, fight to take the good guy's territory and all that go with it. As far as he was concerned, this sexual business was junk. Since he was telling me that I was too, I decided to try bringing him down a notch or two.

"Bennie", I said, suppose you were in your kitchen mixing yourself a drink and you looked out over your back yard and saw the teenage neighbor boy climbing over the fence and into the yard. What would you do?" His answer was thoroughly proper and civilized. "I'd go out and tell him to get back to his own yard or I'd beat the hell out of him.", he replied. Fine with me, if the neighbor boy wasn't too big I'd have done the same thing. Then I tried a different approach.

"Bennie", I said, "suppose while you were mixing your drink and saw the kid climbing over your fence, you also happened to notice your teenage daughter stretched out on the grass sunbathing in the nude. Now what would you do?" He really got out of control. "The first thing I'd do is go get my gun. Then I'd go out and tell that sonofabitch to stop and if he didn't I'd plug him full of holes!" "Wouldn't you call the police first?", I asked, "and then go out with your gun to make sure he didn't do anything to your daughter? After all, you may not have had any idea what the young man's intentions were, other than encroaching on your property for whatever reasons. He may not even have noticed your daughter." He didn't reply, but sex, real or imagined, had reared its ugly head. I figured I had made my point and changed the subject.

When I had finished Walter's book, through the publisher I wrote a long letter to him, telling him how impressed I was and asking about his background — certain it was academic, that he was a professor of international relations, or philosophy, or anthropology at some prestigious British university. Some weeks later, I received a reply thanking me for my kind words and telling me I was literally the only one to write to him about his book. As for his background, no he wasn't a professor. He had graduated from Sandhurst (the British West Point) and after a very long career retired as a colonel. He had been a combat infantry officer, fighting mainly to protect the Empire — in Africa, the Middle East, Asia, wherever; and finally in World War I and II. Over all these years of fighting and seeing war in the raw and countries gripped in the throes of war, this sexual theme gradually dawned upon him. He vowed that when his career ended he would write a book about it. Which he did, but was unable to get a publisher, so he dipped into his meager pension and had 500 copies printed at his own expense, most of which never sold.

He was scared to death, considering the implications of his thesis, about what might happen to the world now that nuclear weapons were around. Seeing no way of influencing anyone with his intellectual arguments on the cause and true nature of war, he joined the peace movement in Britain, a well meaning waste of time, as U.S. peace movements have been: they never work during peace, for the kinds of reasons Walter wrote about. We corresponded for a while, mainly in the way of him sending me pamphlets on peace and disarmament, which made no sense to me at the time and still don't. During our correspondence, he got around to asking me what I did for a living. I told him I was in the nuclear weapons business. In his next letter, he asked me if I ever had observed anything sexual in the behavior of nuclear particles. With that, I figured we had reached the end of the line. I didn't reply.

I've never regretted cutting off our correspondence, but I've never gotten his book out of my mind. I have done a fair amount of reading on war and its causes over the years. Except for Colonel Walter's book, all of it left me feeling pretty cold. None of it, in my opinion, dealt with "why" but rather with "because", which is no explanation at all and ignores possibilities for dealing realistically with the problem. But at least Walter tried to get down to basics, rather than spouting broad generalities that few disagree with because they're so obvious, but also useless toward trying to avoid war, which most agree is a pretty stupid thing, except that we go on doing it and doing it.

Now I haven't gone through all this sexual theory of war to titillate, intrigue or amuse you, and certainly not to waste your time, which you may feel I've done. What I was trying to get at, in my own way of explaining Walter's thesis, which may be totally groundless but at least tries to deal with the problem at the ground level, is that gaining an understanding of war may be light years removed from doing something about it, which involves somehow changing human nature, which isn't about to happen soon enough to prevent any number of wars from occurring in the future.

This may be of some intellectual interest to you, as it is to me, but it's not really of very much use toward dealing with the current realities of the situation, which are that we simply don't understand what war is all about. That being the case, what worries me is that we feel compelled to prepare for fighting wars in the hope, however forlorn, that such preparation may succeed

in deterring them. Which so far has proved to be worthless. What bothers me most of all, which I've been harping on here, is how irrationally we prepare and how little we know about the war we're preparing for. Having been mainly in the nuclear weapons business, I've felt most qualified to discuss nuclear war and try to convince you of our colossal ignorance on this matter. However, out of professional necessity, in performing studies involving the use of both nuclear and conventional weapons, I've picked up a fair amount of knowledge of conventional weapons; enough to realize how precious little we know about conventional war — the kind we love to fight and on which we spend most of our defense monies. Not only have we been ignorant to an extreme about conventional war (as the last one we fought, against Iraq, so amply proves) but, far worse, our policy practically compels us to continue getting ourselves into these kind of wars. Why is this the case?

Even were Colonel Walter's assessment to be correct and were it to be accepted by those who control our country's destiny, it wouldn't make a bit of difference. We'd go on as we've been going on, for all the reasons given here. Sure, now that the major threats against our interests seem to be subsiding, we're beginning to cut down on the defense budget, which is fine, and consummating more arms control agreements, which is fine in principle but dubious in reality because we don't understand what we're agreeing on. But into the foreseeable future there are going to be piles of nuclear weapons around and huge conventional armies; and if the temptation (better yet, compulsion) to use them becomes irresistible, we'll use them. We may be getting our hopes up these days that more wars can be avoided; but so long as no fundamental policy change takes place I suspect the situation will remain hopeless. After all, we've gone through all this before; disarmed ourselves and our potential enemies, formalizing this through treaties, only to see the treaties broken (history is replete with broken treaties) and the conditions for another war take shape. So nu, Sam Cohen, having said all this what have you got to say? You said you've got some hunches on what we should do to save our hides. What are they? Here they are.

My major personal problem is dealing with my life are the unconscious forces that drive me. Maybe yours too and certainly our country's, and most other countries that get into war after war. But there's an enormous moral dilemma between killing people or getting killed yourself in times of peace. During war, however, killing others or getting yourself killed in war is another matter and certainly nothing to be troubled over. Seems wildly irrational to me, but that's the way it is.

As for the United States, my hunch is that the best way to solve the dilemma I've been addressing, getting into wars, is to: change our national security policy back to what it was from the country's beginning up to World War I — namely, no major foreign military intervention; and, to make sure we can't intervene, substitute a meat ax for the scalpel we've grudgingly been using to try to reduce the defense budget, which has no rational underpinnings, and chop off our conventional military capabilities to a degree where they can be used only to protect ourselves. And having done that, place the major emphasis on devising and deploying defensive armaments — meant to save American lives, not take them in damn fool wars with other countries. At the same time, we should start focusing inward for a change and try doing something about our deteriorating domestic situation; and the monies saved by changing our military

posture in this fashion, far more than any politician in power dares to think about these days, could go a long way toward making this possible, assuming they're applied sensibly. But that's another problem I'll let you worry about.

Here, in the broadest sense, is what I believe ought to be done. Can it be done? I don't know, but I'm dubious, very dubious. If we try doing it, will it work out satisfactorily? I don't know, and were I to thoroughly subscribe to Norman Walter's thesis, I'd be more than dubious, I'd feel hopeless. But hope springs eternal, and if I'm skeptical, for very good reasons, I'm not cynical enough to give up trying to get in my two cents worth. I'd like to feel that there's a certain rationality behind my hunches on what ought to be done; but since we're dealing with so irrational a subject and people, including myself, who usually can't act rationally under most circumstances when other people are involved, I don't place much credence in my feelings. Maybe, even probably, what I've been saying to you doesn't prove a thing; nothing does when you're so ignorant to begin with, which happens to be the case with me. And you too. On the other hand, if we don't know where we are, just in case you're one of these philosophical types who believes the past has some bearing on the future, let's go through some history. Let's cover this century during which on many (far too many) an occasion our country has dispatched troops beyond its border and gotten into wars, and how they have affected our national well being.

World War I, whose resolution paved the way for World War II, involved almost 5 million U.S. troops, most of them in the Army that fights the real wars where the slaughter is greatest. (A lot of young bucks to keep away from mom and sis.) The total casualty level was a bit over 300,000 and the cost (money counts in this country) was, in terms of today's dollar value, about \$400 billion. If you buy Colonel Walter's explanation, the war was fine while it lasted but it didn't last long enough and not enough soldiers were killed and wounded to satisfy and traumatize the country into staying out of the next war, which was none of our making (or was it?). Nor did it affect the French, British and Germans who suffered far more than ourselves, who one way or another could have prevented the conditions bringing about World War II from occurring. The logic of prevention was as plain as the nose on your face; the irrationality of these countries, all countries for that matter, in letting World War II happen defied logic. Anyone in their right mind could have predicted the awful consequences of World War II, like almost everyone can predict the consequences of World War III if it ever happens; but nevertheless practically everyone allowed it to happen. As for World War I, practically by any standards it was a dismal failure. Sure we won it, but 20 years later, we were all set to go for the next one, and it happened. It may be true, it's certainly acceptable to most Americans, that there's no substitute for victory; but there is an alternative to it — stay out of war unless you're attacked.

World War II pulled some 16 million young Americans from their home towns (11 million going into the Army) and for us lasted some 4 years, produced over a million casualties, and cost us about \$2 trillion. I didn't get to fight in it, nor did I get to observe the national mood during the war (I was locked up at Los Alamos), but I did get to read TIME magazine and watch the Fox Movietone news. From my isolated perch, it was like watching an old John Wayne war movie; full of excitement and a lot of fun for the folks back home

who proudly would put Gold Stars in their front windows for all the neighbors to see, when junior became a hero by getting killed even though few of them were heroes and some of them were stupid enough not to stay out of harm's way. It was a terrible war, but mainly terrible for everyone else — we barely got scratched compared to France, England, Germany, Russia and Japan; so terrible that we went back on our prewar policies of non-intervention and declared we were in the rest of the world for keeps. In concert with new allies, our recent enemies, we would resist aggression at every turn, especially commie aggression. Which we proceeded to do, with precious little help from our allies and sometimes resistance and derision when our intervention seemed at odds with their interests. Having made this decision to be the world's policeman, with the Nuclear Age upon us, ever since one of Murphy's Laws has dominated our foreign policy: "If anything can go wrong, it will." And practically everything has.

Korea pulled away some 6 million young men and cost about \$300 billion. However, and Colonel Walter would jump on this number immediately, we suffered only about 150,000 casualties — a mere pittance in depleting the ranks of the so called cream of our manhood. In terms of killing on a respectable scale, it lasted only a year or so, after which most of the youngsters were back home. Worst of all, as many, including myself, saw it, it was a war we didn't win. When it was over, the country we sought to defend had suffered horribly, as I saw first hand, and continued to suffer under harsh dictatorial rule, and still does to an appreciable degree. What did we really get out of it? By Colonel Walter's standards, not enough bloodshed and down in the U.S. subconscious we were setting the stage for the next war, as miserably as the last one had ended. A dozen years later we had begun suckering ourselves into the Southeast Asian quagmire, for the most specious, make it idiotic, reasons imaginable — the domino theory, which turned out to be horseshit; the vital economic interests theory, which was horseshit to begin with and meaningless when the war ended (all the economic treasure of Southeast Asia available to us was dwarfed by the treasure we expended to fight the war.)

Vietnam had almost 9 million young men involved, about half in the Army, cost about \$400 billion, lasted almost forever, and for the first time in our proud military history, we lost, after suffering a couple of hundred thousand casualties, a mere sexual pittance. Most Americans, including myself, were enraged over the outcome and many of the poor guys who were drafted and sent over there were treated like dirt when they returned — one of the most shameful performances this country ever has put on. Richard Nixon got the message and no sooner was he in the White House when he declared a new doctrine for fighting other people's wars in every place except Europe. Under the new policy, known as the Nixon Doctrine, we'd supply these countries with guns provided they supplied the bodies. Sounded great to me, for by now I was so fed up with our whole damn foreign policy I had joined the ranks of the America Firsters. No more foreign wars, anyplace; let's keep our boys back home and stop messing around overseas. We'll do business overseas when it's in our interests to do so, but when it comes to fighting overseas it's none of our business getting involved: we'll only get hurt badly and that's bad business. However, no sooner was Nixon forced out over Watergate and Ford took over, so much for the Nixon Doctrine. Before you knew it, the Administration once again was bleating the same old line about our having to be able to fight all

over the world, with conventional armies, to defend our “vital interests”. As usual, these interests were never specifically defined in terms of how much our interests might suffer in protecting these allegedly “vital” ones. (Obviously President Ford had redefined our vital interests in Southeast Asia, for when the last helicopter left the roof of our Saigon embassy, he was in Palm Springs playing golf instead of in the Situation Room in the White House.)

You might think, unless you were Colonel Walter, or maybe Sam Cohen, that after the Vietnam debacle we would come to our senses, realize these conventional limited wars just don’t work, and cut out this nonsense. No way. I never cottoned very much to Jimmy Carter but I did get the idea he had no use for war. (He also had no use for the neutron bomb; but what President really has? I more than forgive him.) He seemed willing to do a lot to keep us out of these damn fool things, even to the point of wrecking his presidency over the Iran hostage affair. However, once Ronald Reagan got in (and I saw this in the making as a senior defense advisor during and after the 1980 campaign), the conventional genie was out of the bottle but good. The stage was set to spend an additional trillion or more dollars on building up our conventional forces.

As Reagan’s Defense Secretary Caspar Weinberger explained his boss’s military policy: “Conventional wars could come in all sizes; if we value our freedom, we must be able to defend ourselves in wars of any size and shape and in any region where we have vital interests. That means developing urgently a better ability to respond to crises far from our shores, and to stay there as long as necessary.” I was appalled; most Americans, with the memory span of a two year old, were entranced to have a really tough president running the country for a change and fully supported this defense increase; and practically all of the Congress gladly coughed up the money to pay for it. Once again, we were buying our way into another war with no idea what we might be getting into and what it might cost us (Substitute Holy Grail for “vital interests” and Sir Galahad for General Norman Schwarzkopf and you’ve got the picture.)

As for General Norman and his Holy War, if you want to call it a war (I think it was a farce from the beginning to what has yet to end, and may end, one way or another, with another round of fighting), in the Persian Gulf, I find it painful to go through the numbers and the costs once again, but for the sake of consistency and masochism I will. We sent a half million Americans over there. First they bombed Iraq half-way back into the Stone Age, killing and maiming thousands of non-combatants and, due to our miserable intelligence (as usual), not destroying their capability to produce weapons of mass destruction. Then the Army fought for a couple of days against a bunch of poor Iraqis in no condition to fight and suffered less casualties than occur to innocent citizens back here every day on our city streets. It cost us a mere pittance, 5 to 10 billion dollars (our allies, most fearful that the oil supply might be cut off, footing the rest of the bill, some 50 or 60 billions). And again, we didn’t manage to win, we chose to stop when victory was 24 hours within our grasp. The sanctions we imposed on Iraq months before the war started in earnest still go on, and have accomplished little toward making Iraq behave itself, as the country digs itself out of the rubble we created and rebuilds its military machine.

Saddam Hussein, worse than Hitler George Bush declared, whose troops committed unspeakable atrocities in Kuwait and before then in Iran and his own country, got off with a wrist slapping, kept most of his first-line troops and

most probably in places our intelligence knows nothing about is developing and even stockpiling new weapons of mass destruction and missiles to deliver them. As a result of this dismal U.S. failure, President Bush's popularity soared to an all-time high, General Schwartzkopf was paraded down Fifth Avenue and before the Congress, retired and began picking up a small fortune making speeches. Johnny came home proud as a peacock to a proud country. Great! But why?

If you know why, I'd appreciate an explanation. Would you please explain to me why a country brims over with pride over a non-war, with no heroes, that wasn't even won and let one of the worst despots in modern times go on with his sweet behavior and prepare for another war if he feels it will be to his advantage. It probably will be, because I doubt the American people are willing to go through this charade again. But if again we lose our senses and it happens again because of our crazy habits, we may find our troops exposed to hi-tech chemical, biological, and nuclear weapons this time around, with no effective means of response since we've dismantled our battlefield nuclear stockpile, as well as our chemical and biological capabilities. Should this happen, unless we put strategic nuclear weapons on Iraqi cities, we may well lose. I wouldn't rule out this possibility. I also don't accept it.

Another person I suspect wouldn't accept it, were he around today, is George Washington. For those of you who never read or forgot his Farewell Address when he stepped down from the first presidency of our country, I'd like to quote some of the things he said about our foreign policy.

"Observe good faith and justice towards all Nations. Cultivate peace and harmony with all.... It will be worthy of a free, enlightened, and, at no distant period, a great nation, to give to mankind the magnanimous and too novel example of a people always guided by an exalted justice and benevolence. Who can doubt that in the course of time and things, the fruits of such a plan would richly repay any temporary advantages, which might be lost by a steady adherence to it? Can it be that Providence has not connected the permanent felicity of a Nation with its virtues? The experiment, at least, is recommended by every sentiment which ennobles human nature. Alas! is it rendered impossible by its vices?"

"In the execution of such a plan nothing is more essential than that permanent, inveterate antipathies against particular nations and passionate for others, should be excluded; and that, in place of them, just and amicable feelings towards all should be cultivated. The Nation, which indulges toward another an habitual hatred or an habitual fondness, is in some degree a slave. It is a slave to its animosity or to its affection, either of which is sufficient to lead it astray from its duty and its interest."

"As to avenues of foreign influence in innumerable ways, such attachments are particularly alarming to a truly enlightened and independent Patriot. How many opportunities do they afford to tamper with domestic factions, to practice the arts of seduction, to mislead public opinion, to influence or awe the public councils!"

"Against the insidious wiles of foreign influence, I conjure you to believe me, fellow-citizens, the jealousy of a free people ought to be

constantly awake; since history and experience prove that foreign influence is one of the most baneful foes of Republican government."

"The great rule of conduct for us, in regard to foreign Nations, is, in extending our commercial relations, to have with them as little Political connection as possible."

"Why quit our own to stand upon foreign ground? Why, by interweaving our own destiny with any part of Europe, entangle our peace and prosperity in the toils of European ambition, rivalry, interest, humor, or caprice?"

'Tis our true policy to steer clear of permanent alliances, with any portion of the foreign world."

"Taking care always to keep ourselves, by suitable establishments, on a respectable defensive posture, we may safely trust to temporary alliances for extraordinary emergencies."

"Harmony, liberal intercourse with all nations, are recommended by policy, humanity, and interest. But even our commercial policy should hold an equal and impartial hand; neither seeking nor granting exclusive favors or preferences."

I find it difficult to quarrel with any of the above, although I sure wish I had a better grasp of English as it was then and still ought to be. But then Washington, if he could understand my jargon, shocked as he would be with my prose that deserves a merciless death, might have no quarrel with my position. Nor would, I suspect, most of his predecessors until World War II, although some of them felt forced to ignore the common sense of his admonitions and stray from the beaten path, and accomplish little of lasting value. However, since World War II every U.S. President — all of whom, I would like to believe, have read this advice from the Father of Our Country — either has failed to understand it; or went through the motions of reading it, so he could say he read it, but paid no serious attention to it; or read it, understood it but took a look at the political realities affecting his presidency and ignored it, and got our country into a mess by taking the country into war. Just take a look at the world today to see how our interventionist foreign policy has been working out. It hasn't. Yet we persist in trying to make a sow's ear into a silk purse by, of all things, being willing to get into more damned fool wars overseas.

"So nu?", you might say, "what do you think we ought to do? What's your plan?" My first response would be "Ask George Washington." But, alas, he's sound asleep at Mount Vernon and it would be unfair to wake him. My second response would be "Ask Norman Walter." But the good colonel is probably off in some nondescript cemetery in Britain in a nondescript grave, forgotten and unvisited, unless someone like myself in Britain who liked his book shows up on occasion to pay respects, which are, I think, richly deserved. My third response would be "Keep reading."

In the broadest sense, and let's make me President, here's what I would do.

For startoffs, I would emulate my hero of the Depression days, who made it possible for my family to pull through, FDR, who had he remained President for another couple of terms probably would have gotten us into the Korean war, despite his famous declaration "I hate war!" I would begin with a series of his Fireside Chats and outline to the American people what had to be done to get us

out of our foreign policy stew, starting by explaining the problems that Washington saw in terms of how I would now see them, a couple of centuries later. The solutions I would propose and explain would be simple to an extreme, for the simple reason that so are the problems we face — that is, the problems I’ve been addressing. As I’ve been trying to pound home to you, we don’t really understand the military issues that underlie our foreign policies; we never have. In contrast to the way the government treats the problems by telling us how complex they are and how, thanks to our ability to analyze them in great numerical detail, we can get solutions, I would come right out and say that we know almost nothing on these issues. What we don’t know, which is an enormous amount, we can’t analyze; but what we do know is that based on experience and common sense we can make judgments on what we should and shouldn’t do. What we shouldn’t do is real simple to deal with; don’t do it. What we should do is another matter, and the extent to which we should do it is something we do to the extent the monetary traffic will bear. It may not be enough; it may be too much — we’ll never know. But at least we should do it because it’s the sensible thing to do. From there on, let history play itself out, which in its own crazy unpredictable way it will.

In no sense, am I about to propose panaceas. There aren’t any. What I’d rather do is chat with your, listen to your questions, which are going to be damned good ones because I made them up, answer them as best I can, and then tell you what I’m going to do and why I hope you’ll go along.

Any Questions?

Okay folks, you’ve heard what I have to say. Any questions? Speak up.

“Iraq??” I’ve answered that one!!¹

What should we do with our military forces intended to fight ground wars around the world?

Reduce them to a level where we no longer can fight ground wars around the world. This means slashing the Army, Navy, Air Force and Marines to a degree where we no longer can dispatch troops capable of fighting anyone — Russia, North Korea, Vietnam, Syria, Iraq, Libya, and wherever else U.S. military and paramilitary forces might otherwise be used. Many people now claim to go along with the idea that we no longer can afford to be the world’s policeman. That’s a cliché. Let’s put it another way: Should we be anyone’s policeman but our own? We’ve got some terrible problems within our own borders that need far more policemen than we now can afford. These soldiers overseas, and those back here slated to fight overseas, cost an enormous amount of money to keep up, over two hundred billion dollars a year — in salaries, maintaining equipment and getting new equipment, and so on. Get most of them out of uniform and since a lot of them have a lot of the skills a good cop needs, and understand discipline, it should be relatively easy to put some fraction of them into police uniforms to deal more effectively with our crime problems. It takes roughly a hundred thousand dollars a year to support a soldier; it takes but a fraction of that to support a policeman who doesn’t need tanks, artillery, antitank weapons, antiaircraft weapons, etc. to do his job. As for the weapons our combat personnel now have, sell them at bargain basement prices to our friends around the world we’ve been willing to fight for, and long

¹ Added September 2, 2005.

have been selling new arms to them. It would be more business as usual; we've been Merchants of Death forever and these days the competition with other countries, especially the former Soviet Union, is pretty hot and heavy as they try to unload weapons, at a price, to anyone willing to buy them. So instead of our arms merchants continuing to make fancy profits by selling weapons to our so-called friends, many of whom, by our standards, are kind of despicable, let's give the U.S. taxpayer a break, and a huge one, and sell these arms. There's nothing really immoral in doing this; to the contrary, as our policy reads, we're doing what we're supposed to do toward protecting our interests around the world and easing the taxpayer's burden at the same time. Or would you rather see us protect our interests by getting into more wars where we spend most of the money, and American lives as well?

What could be simpler and what could be more guaranteed to help ease our economic burden? Will it work? I don't know, nor does anyone else. If it does, well praise the Lord. If it doesn't and the rest of the world once again goes at each others' throats, regardless of perceived military balances and imbalances, well that's their privilege but it's not our problem. They've been doing it for centuries and during most of its existence the United States, following Washington's advice, has remained concerned but aloof; and most of the time prospered immensely. We'll still have two big oceans to protect us from foreign invasion, barriers that no foreign armies can breach. The last thing I'd lose any sleep over is protecting ourselves against a threat that originates from thousands of miles away and has to traverse thousands of miles of oceans to get at us.

I think this logically leads to the next question I hope you're going to ask. Speak up please.

How do we protect ourselves back here?

Like most Americans, I suspect, but can't possibly prove, that substantially cutting back on defense spending will allow a well-run government (sounds self-contradictory) to convert defense monies saved to monies for improving the economy. That's what everyone, including the Congress, was saying a few years ago when the Soviet empire and economy collapsed, the threat practically disappeared, and a whopping "peace dividend" clearly was at hand. However, aside from pious vows and unreasoned pledges to cut the defense by X percent over Y years, nothing much of anything has been happening. Sure there have been some cuts, but so long as the recession persists and terrified congressmen worry about defense-related jobs in their districts, while patriotically demanding cutting down in other districts, nothing of real significance is likely to happen. And if, heaven forbid, there's another upheaval in the Middle East, South Korea is attacked by the North, or the military overthrows the Russian government and returns the country to a more threatening posture, all these reductions can go out the window overnight. And the defense budget and taxes will go up; or, as has been happening since Reagan ordered a huge buildup of the military, the budget deficit and national debt will go further out of sight. That's how the process has worked thus far and that's what happens when you're grappling with a problem you never tried to seriously understand in the first place and fell victim to myths rather than deal with facts.

Granted the difficulties of achieving meaningful change — that is, dealing with the facts of the situation; let's slip back through the looking glass and imagine a situation where miraculously the fundamental policy change I've

suggested actually takes place. How should we implement the new policy in terms of drastically restructuring our military so that *our* protection comes first? I'll try answering this by first addressing a number of pressing problem areas critically affecting our security. Then I'll give you my ideas on how we ought to tackle them.

As mentioned there are a host of threats from without that threaten our physical and economic security, ranging from the continued threat of nuclear attack to the infusion of drugs into this country. As to the magnitude of these threats and how they may change for better or worse in the future, I don't pretend to know. As an ex-crystal ball gazer whose batting average became so abominable, when for year after year, starting in the late 1960s, I confidently predicted the inevitability of nuclear war between the USSR and the West the Soviets would win hands down, that I washed my hands of this nonsense, I'm now resigned to the sad fact that we can't plan our way into the future by trying to understand and analyze it. We'll try anyway because we feel compelled to, but for heaven's sake let's not pay serious attention to those who do.

As blurred as my view of the future may be, one prediction I have no qualms in making is that our intelligence on future threats will remain miserably lacking. These threats, whatever they may be, some we may never know about, will not be sufficiently understood in most cases to allow precise planning to be done. We're going to have to proceed mainly on the basis of profound ignorance, as we've done in the past but haven't admitted to it. Decisions will have to be made not on the basis of quantitative analyses, but on common sense and judgments made within whatever the fiscal traffic will bear. We'll never be able to make correct decisions but if we're honest with ourselves we can make far better ones than we have. In this vein of thinking, let's go through some threats that should continue to plague us into the interminable future.

The Nuclear Threat

All the signs, but not all the evidence because we don't have all the evidence, point to an increasing possibility that the former dreaded nuclear war scenarios of World War III are on the way out. (Of course, there's the possibility that they never may have deserved serious consideration, except by demented minds like mine.) These scenarios covered the full gamut of possibilities.

At one end, there might be a limited war, like another Arab-Israeli conflict, escalating out of control. The U.S. would go to the aid of one side and the Soviets to the aid of the other side. Tempers flared, things got out of control, and before you knew it the U.S. and the Soviets were trading thermonuclear punches and a fair share of "civilization" went up in smoke. Countless millions were killed and societal fabrics physically and humanly demolished. For example, during the Yom Kippur war of 1973, the United States went on a limited nuclear alert to indicate it was prepared to go to nuclear war should the Soviets take action against Israel to prevent them from defeating and occupying Egypt. Had this actually happened, and it might have in accordance with our policy, it would have been sheer insanity to sacrifice ourselves over a small country whose survival, as much as it may have meant emotionally to us (especially to me as a Jew), realistically had no bearing on our survival. But with emotions mounting by the day and enormous political pressures being

brought to bear on the U.S. government, the war could have escalated out of control, as many ranking U.S. government officials feared might have occurred during the Cuban missile crisis. This too would have been insane, but in my opinion so was U.S. policy which allowed such horrors even to be contemplated.

Another scenario was a Soviet-Warsaw Pact conventional attack on NATO Europe that couldn't be contained by conventional means, which almost all military analysts believed would be the case. In this event, feeling honor-bound by treaty, we would try to respond with tactical nuclear weapons and if that didn't succeed, and it unquestionably wouldn't, in bringing the conflict to a halt, we would follow up with thermonuclear attacks on the USSR itself, and Armageddon would result. Or, if one believed Soviet official military doctrine, which they never made any attempt to hide, from us or their own field commanders, the Soviets, on the basis of pure military logic, would ignore the NATO-preferred conventional attack scenario and, taking advantage of its huge superiority in tactical nuclear weapons (which we couldn't prove but freely admitted to), stage a surprise nuclear attack on NATO. Were this to happen, the military outcome would have been decided literally within a matter of minutes. NATO's ability to contain the follow-up ground attack would have been reduced effectively to zero, considering its total vulnerability to such an attack: the favorite scenario of Henry Kissinger before he entered the government.

Still another scenario, the ultimate one most feared by the U.S. government and the American people, was where instead of concerning themselves with limited wars and such wars getting out of hand, the Kremlin decided the safest and most decisive way of winning the great struggle with the West was to launch a gigantic, all-out surprise strategic nuclear attack directly against the U.S., to destroy our ability to effectively and meaningfully retaliate. Within a half hour or so, the time it takes for several thousand nuclear warheads to go from launch to targets in the U.S., practically all of our ICBMs and bombers, plus a large fraction of our ballistic nuclear missile submarines would have been destroyed. What U.S. President in his right mind, knowing the war was lost, would have responded with nuclear counterattacks, using our surviving submarines at sea, knowing it wouldn't change the outcome in any meaningful way and would only add to the already unspeakable carnage in his country?

However, none of these nightmares, all made possible by insane U.S. policies, ever materialized and by the grace of God, Marx and Lenin, the Soviet Empire and the Soviet Union itself has collapsed from unbearable economic and political strains. Today, no one in their right mind, on our side or on the former Soviet side, seriously envisages the possibility of nuclear war. All the logic dictates this to be the case, if not necessarily the facts, which unfortunately we don't know. Moreover, not everyone is in their right mind and even those who think they are may not be. In fact, for something so poorly understood, the more a person thinks he's of a sufficiently sound mind to have such firm opinions, the greater the chance he isn't. In my mind, this particularly holds true for the political leaders on both sides, especially our side, and they worry me.

The realities of the problem, however, are in the perceptions. As of now, the perceptions dictate there will be no nuclear war in the foreseeable future, even though we can't foresee what the future holds. On this basis, jaundiced as I am on the human condition, on our continued essential ignorance of Russian

nuclear capabilities, despite their willingness to open up so much of their country, I'll grudgingly accept the conventional wisdom and assume there will be no nuclear war.

On the other hand, and this is a perception held by the government and a fair fraction of Americans, neither group willing to do much more than express concerns and support research efforts that probably will be money down the drain, if nuclear war won't happen, limited nuclear attacks on U.S. terra firma may, through any number of means.

There may be any number of disaffected or deranged members of the Russian military who despite the elaborate safeguards set up by the government can get around them and launch nuclear weapons at us. However assiduously the government may enforce its command and control over these weapons, if some of their military are as bright as ours, I can assure you that ways and means exist to overcome the system. (One of the major reasons why the U.S. and its NATO allies have been so queasy over storing tactical nuclear weapons in Europe was the well-founded fear that some demented soul bright enough to get through the psychiatric screening process could be bright enough to get around the lock and key system [acronymed PAL, for Permissive Action Link] and commit the unthinkable.)

That this possibility is low, remote, or even extremely remote, nobody knows. But there are no laws of nature precluding it. This possibility is particularly worrisome for nuclear ballistic missile submarines, where the primary decision to fire reposes in the submarine which for unpredictable reasons may find itself cut off from communicating with headquarters and the officers in command may assume the worst and fire away. To many this may sound so far-fetched as to not be worthy of serious concern (history certainly bears this out). But in these unstable times, the old conventional wisdom on this possibility no longer holds. Again, we just don't know. However, considering the consequences of such an event we really should take measures to deal with it. If a mishap that has one chance in a hundred, a thousand, or a million (Who knows? I don't. You don't. The President doesn't, even God doesn't) can cause tens of millions of U.S. casualties, wipe out hundreds of billions of dollars of economic investment, and cause an unbelievable disruption of American society, then we ought to be willing to spend 20 or 30 billion dollars trying to minimize the possibility of such a horrendous event. Trying to be logical, if we were willing to spend trillions of dollars for the conventional defense of Europe, which never produced an adequate defense, surely we should to spend a vastly smaller sum to defend our country.

To be sure, the Russians have been going out of their way to assure us that their control system is virtually foolproof. They have been doing things with their missiles and bombers that we supposedly (but not necessarily) can verify with satellites and other means, to prove to us that this dread possibility is as close to zero as is humanly possible. However, there are two comments in order here: (1) Are the new Russians all that different from the old ones — deceitful, deceptive, liars, misinformers, disinformers, and other such traits Russians have had over the centuries? We really don't know, although we seem to have convinced ourselves that they are different; and (2) Despite their efforts to reassure us of their non-aggressive intentions, by reducing the alert status of their weapons, do we really know whether this is any more than the discontinuance of electronic signals whose origin we've never been able to

determine? And have we ever known for sure that these signals came from actual weapons, or might they have been generated in the absence of the weapons themselves to deceive us into attacking non-targets while the real ones were hidden away elsewhere where they couldn't be found? There are no good answers here.

As the old saying used to go "One nuclear bomb can ruin your whole day." If we don't know enough to be sure enough that such terrible incidents can't take place, perhaps we should consider measures to make as sure as possible they can't. There's not too much we can do to change the Russian side of the equation, and maybe they're sincere about changing things on their own. However, there are things we can do on our side — like establish defenses that stand a reasonable chance of working, which I don't believe we're doing right now.

In the same vein there's the accidental nuclear attack bugaboo where's something goes wrong in Russia — signals are crossed, high tech Frankensteins turn into monsters who fling nuclear warheads around like they've been programmed to do, you name it. Sounds far fetched and maybe it is, but the White House and quite a few influential congressmen, and even the Russians worry about it and think we ought to something about it. The trouble is they keep on worrying and so far, some 15 years after Reagan's famous Star Wars speech, nothing has been done to deal with it. There are many reasons for such inaction which make the problem seem to be so complex as to be intractable and unsolvable. But what's so complex about trying to save American lives? The solution is very simple, you cough up some money, a lot, and try doing it — realistically. If we stop defending everyone else around the world, I guarantee you the money will be no problem. The expense involved, which will be in the many billions, how many nobody knows, will be inconsequential compared with that of continuing to prepare for a fighting more conventional wars.

Still another nuclear threat is the possibility that someone may steal a nuclear warhead from what used to be the Soviet Union and sneak it into the U.S. and off to some city you don't like and detonate it. How possible it may be to sneak one out, who knows; how easy it is to sneak one into the U.S., it's as easy as falling off a log. Nuclear warheads, at least in this country, have become so small and so light that practically anyone can tote them around. (Back in the 1950s we developed a warhead for a bazooka that weighed less than 50 pounds.) Considering the ease of smuggling drugs into this country, where 80 or 90 percent gets across the Mexican border (it would be higher yet if smugglers were willing to settle for a lower volume and lower profits), smuggling a nuclear warhead into Arizona or Texas and to, shall we say, Washington, D.C. should be no problem. Defending against this possibility would not involve sophisticated antimissile and anti-aircraft weapons; it mainly would be a case of sealing land and sea entry points into the U.S., which we should have done a long time ago, and which at the same time could have dealt with the drug infusion problem. Once again, compared with the cost of sending forces overseas time and time again, the cost of sealing our borders, if we do it realistically, could be relatively trivial. We already know what the cost of not doing it has been to this country with respect to drugs. The cost to this country of almost unrestrained drug consumption has been enormous — in decreased

productivity, to say nothing of ruined lives; far greater than that of keeping drugs out of this country, if we went about it the right way.

In the above horror scenarios, I've focused mainly on Russia. However, there's also Red China, about which we know far less than Russia, where these unthinkable also can originate. China, which still is Red, has been in the nuclear weapons business for some 30 or so years and short of all-out nuclear war poses similar nightmares. Sooner or later, if nothing is done to prevent it, and probably nothing will be done, which is par for the course, countries like India and Pakistan who one of these years will be just as capable of launching attacks on us as each other, will have to be added. And ultimately, who knows who else.

The above scenarios are hardly new or unique. To one degree or another we've been exposed to these possibilities for decades but have done nothing of substance to deal with any of them. Even were the ultimate nightmare, all-out nuclear war with Russia, to reemerge as a recognized threat, we'd be back to where we were: the threat of massive reprisal against the Russian population and economy, hardly a very moral response. However, we've agreed to dismiss this nightmare from the discussion, so let's turn to the lesser threats, which are horrendous enough and start considering defensive measures against them.

Ever since Reagan's Star Wars speech, the popular impression has been that the only defensive measures to be worked on should be against nuclear ICBM attacks. Early on in the Strategic Defense Initiative (SDI) program, space was going to be filled with satellites carrying lasers, ultra high speed electromagnetic guns, minirockets just a few feet long that can streak through space and blow up an enemy ICBM before it can dislodge its nuclear payload, and other super hi-tech devices. (None of these bright ideas have proved very promising so far. As a result, their budgets have been cut severely and the idea of defending not only our country but everyone else has been effectively discarded as far too expensive and in some cases not even feasible. I couldn't agree more with this decision; I was aghast from the very beginning over the claims made of being able to put a leakproof umbrella over the world.) Not to deny the immensity of the ICBM threat, at the same time we were going all-out on SDI, although the Pentagon still clamored for new strategic bombers, specifically the B-2 Stealth bomber, it dismissed out of hand the existence of the Soviet bomber force, which was being modernized apace and by itself constituted a terrible threat to this country, against which we had no defense nor did we plan any, even though this was far more readily accomplishable than SDI. Just as some Russian renegade might lob an ICBM against us, so can a disgruntled bomber crew. The Strangelovesky scenario still is possible. Nuclear accidents and mischief aren't limited strictly to ICBMs.

So far, in discussing limited nuclear threat scenarios, we've confined ourselves to weapons with nuclear warheads that go bang, suggesting that we start doing something as quickly as possible to achieve an effective defensive capability. But not all nuclear weapons have to go bang and cause widespread devastation. Before getting around to how we should tackle the defensive problem, I'd like to bring up, half-way seriously, a nuclear weapon that doesn't go bang, doesn't have any international legal restrictions on its development, production and use, and from a moral standpoint, at least theoretically, poses a

unique dilemma: How do you retaliate against a country that has done essentially nothing to you except make your societal and economic life miserable for a while, like a prolonged train or airline union strike?

Most nations have signed the Nuclear Non-Proliferation Treaty, under UN auspices, which forbids them from developing nuclear explosives and producing fissile materials, uranium and plutonium, that go into them. Some nations party to the treaty, Iraq being a glaring example, have been circumventing it; it's not all that difficult to do. However, although it has been considered, but not too seriously, by the UN, to date there is no international agreement forbidding the production and use of radiological weapons, which rely on using certain radioactive elements, whose distribution over a populated area can force its evacuation for some prescribed period of time — days, weeks, months — but not necessarily directly produce casualties. Moreover, barring a practical Star Wars type of space defense, coping with this peculiar threat will be extremely difficult and maybe infeasible.

Suppose some country, let's take North Korea (still communist), gets some ICBMs from China (still communist) and puts them in silos, as other countries do. Adjacent to the missiles is a small high-powered nuclear reactor fueled by non-nuclear weapon grade uranium, purchasable from any country without violating any arms control treaty. Surrounding the reactor would be a hollow shell containing millions and millions of very small (BB-sized) pellets made of a material having a great proclivity for absorbing neutrons escaping the reactor and becoming highly radioactive.

Suppose one day, for whatever reason, North Korea's president, or a disgruntled commander of a missile unit, takes it into his head to load up the missile nose cone with these pellets, pushes a button and off goes the missile toward: Well, how about Washington again. Once the missile is out of the atmosphere and on its way to our nation's capital, a dispensing mechanism in the nose cone releases the pellets in a controlled manner so that at the other end of the trajectory there's a long (tens or even hundreds of miles) stream of these pellets whose diameter is about that of a circle encompassing most government facilities. As the pellets reenter the atmosphere they slow down and ultimately come wafting down to the surface.

Within several minutes this area is covered with millions of these pellets emitting nuclear radiation essentially the same as high energy X-rays used for industrial purposes, making the area uninhabitable for some period of time. If the bureaucrats and politicians running our country into the ground want to avoid radiation injury, taking their sweet time they can either go into underground shelters, if there are any, or off to Virginia and Maryland where they may live, and if they don't live there move in with some friends, and wait for the radiation to die down to a safe level. In the meantime though, for better or worse (take your choice) government operations will largely have come to a standstill. I might add that no defense system we now have or are seriously considering is capable of dealing with such a threat: It may be possible to disable an incoming nuclear warhead, but nothing envisaged so far can practically prevent these pellets from doing their job.

When all is said and done, to a first approximation this weapon, if you want to call it a weapon, will have done nothing except to foreclose on human activities for a while. Apart from that it will have done nothing, I repeat

nothing, that would result from other weapons (nuclear, chemical, biological, what have you.) It's a "nothing bomb." It may do nothing, in the sense of effects resulting from other kinds of weapons, but is it worth anything? Perhaps quite a lot.

Getting back to North Korea, having a nothing bomb capability, suppose it decided to invade the South, currently our ally, and threatened its use against the U.S. as a deterrent to U.S. punitive actions, whatever they might be. What would our response be to such a threat vastly more humane than using nuclear explosives? Would we wipe Pyongyang off the map, as we did to a substantial fraction of Baghdad in the Gulf war? If we believed in Just War theory we wouldn't. Or would we just let them alone and face a repetition of the Korean war, which turned out to be ruinous? Or suppose they adopted this scheme into a short range theater missile, which they already have, to use against Seoul in facilitating their conventional ground attack. How would we react to this, even if they had no long range capability to threaten us? Multiply these possibilities around the world and the situation becomes interesting. Not that it will ever happen, but it can't be ruled out technically; it's really not too difficult to develop such things, not in the slightest illegal in terms of arms prohibition treaties, and, one can argue, relatively humane and even moral compared with other weapons.

If you're wondering who on earth could contrive such a scheme, I did, about 30 years ago. Which I'm sure doesn't surprise you since it involves radiation, my number one military fascination. It never drew any attention because it never got out; even though the concept was totally unclassified, my report was stamped secret and may still be.

Non-Nuclear Threats

By far the greatest non-nuclear threat to our country is the threat U.S. Presidents since World War II have issued to the rest of the world. That it better behave itself according to our standards or, by God, this is war! So we've gotten ourselves into conventional wars — big ones, little ones, and even non-ones as the Persian Gulf war turned out to be — and to a war every one of them, to one degree or another, has been a fiasco. While we've gone through this belligerent ritual, in most cases most of the world has stood by, as we tried to save the world, and let us do most of the fighting, pay most of the expenses, and then find out that in no way have these wars served our "vital interests" these Presidents claimed were at stake. So much for the facts of life regarding our conventional wisdom behind fighting limited conventional wars. But what about non-nuclear threats that are totally feasible and for which capabilities long have existed, but thus far in the post World War II era have yet to materialize against us? Several years ago, my long-time friend and colleague Joe Douglass authored a book ("America the Vulnerable: The Threat of Chemical and Biological Warfare") whose preface contained the following statement: "While the United States debates the development of a massive defense effort against nuclear attack...the fact remains that this nation is almost entirely defenseless against chemical, biological, and toxin weapons of mass destruction. Some of these weapons may already be secreted within our borders; others could be synthesized by our enemies within a matter of hours, or days at the most. Indeed it is doubtful that most biological attacks would even be recognized for what they are. Even if it could be proven with certainty

that the outbreak of a particular disease was not a natural occurrence and instead was deliberately instigated, it would be almost impossible to pinpoint the exact source.”

Sure, you’ve seen this scaremongering before — in movies, novels, wherever. When you first were exposed to this stuff, probably at a very young age like myself, you probably couldn’t sleep for weeks. But after a while, months, years, decades, you get pretty tired of it and switch over to other horror stories based on different themes. And after a while, when it looks like the greatest horror of them all, nuclear war, has not happened and will not happen, you turn yourself off and seek other ways of scaring yourself. But this may be sticking one’s head in the sand; for even though no nuclear weapons have been used since Nagasaki was bombed, chemical and biological weapons have been used and have killed thousands and thousands of people — exactly how many, we don’t know because it’s been extremely difficult to find out, plus there have been idealists in the West who, in the face of overwhelming evidence to the contrary, refuse to believe human beings are actually capable of using such horrible weapons against other human beings. As uncomfortable as it may be to admit to the existence and use of these weapons, they’re for real, they’ve been used and it would be a miracle if they’re not used again, including against us.

The chemical and biological agents referred to by Douglass are the products of decades of research which has made possible weapons literally thousands of times more effective than those used in recent years by the Iraqis against Iranians and Kurds and by former Soviets against former Soviets and by Vietnamese against Southeast Asian insurgents. In the lead to develop such agents, at least according to our intelligence, have been the Russians who long have been applying genetic engineering techniques to produce new viruses and toxins about which the U.S. has only a glimmer of knowledge. We haven’t the wildest idea what kinds of antidotes are required to counteract their effects, no more than our ability to counteract AIDS after spending billions and billions of dollars. Besides Russia and Iraq, there is evidence that North Korea, Iran, Syria, Libya and even Peru have been applying themselves in these areas. Needless to say, the U.S., which subscribes to treaties forbidding the use of these weapons, has stopped their development and production. As for many other countries party to these treaties following our lead, don’t bet on it.

Regarding these weapons being used against Americans, if we can’t entirely prevent this, and we can’t, there are means for both reducing the threat of use and if they are used to reducing their effectiveness. If we come to our senses and stay out of wars with countries having these weapons, certainly the temptation to use them against us, overseas or back home, will be reduced substantially — even enormously, assuming there’s a shred of logic in countries that we otherwise would turn into enemies. (Why these weapons weren’t used against our forces in the Persian Gulf war remains a great mystery, especially considering the Iraqis already had used them against other enemies. Had they used them in a surprise attack early on in our force buildup in the Gulf, with any luck these forces could have been rendered inoperative to a degree where the revulsion back home might have been great enough to bring the buildup to a halt and force a withdrawal of ground-based forces, leaving the war to be fought by the Navy which neither would have forced Iraq out of Kuwait or prevented the Iraqi army from moving into Saudi Arabia and taking over most of the oil facilities. To go on sacrificing American lives to these weapons for

the sake of a small feudal monarchy might not have appealed to too many Americans, including myself, especially in the light of the Bush administration's open decision not to respond to chemical and biological attacks with nuclear weapons, including neutron bombs. As one who has felt our government never should announce its war plans to an enemy, I felt this public declaration was little short of treason, at a time when most military experts — who all turned out to be wrong — were predicting a long bloody expensive war. But that's all history, and for a while things worked out amazingly and unpredictably well until the decision was made to allow Hitler the Second to survive and start plotting for another war.)

On the other hand, even if we stop military intervention overseas, there's more than one way of making or acquiring enemies who for no rational reason may be bitter enough to use these weapons clandestinely, like terrorists sneaking in and doing their dirty work. This is something we should have been dealing with beginning a long time ago, but so far we've done next to nothing. It is a problem we have to begin taking seriously, grimly seriously. We would be idiots not to, yet there are no signs we intend to, even though a great deal can be done to alleviate this threat.

In the same class as chemical and biological weapons are drugs. They may affect human beings in different ways and are seemingly less insidious, but the facts are that to the best of our knowledge not one American residing in the U.S. has been victimized by chemical and biological agents as a result of malicious intent by another country. At the same time, countless thousands, directly and indirectly, have died or had their lives ruined by drugs produced and provided by and through other countries (Columbia, Peru, Panama, Mexico, and others — who we prefer cuddling up to and giving immense amounts of foreign aid, and willing to spill American blood to keep them out of control by countries outside this hemisphere — instead of punishing them.) By my definition, for these countries to allow drugs to be produced and infused into the United States to make billions and billions of dollars, knowing what the consequences are, is little short of an act of war. However, we're not in the habit of going to war over things like this, especially with our Latino friends — unless it's a friend like Noriega who's become too embarrassing.

Okay, enough of all these threats. I'm sure you could add a few more. So it's a dangerous world, but what else is new? Seemingly, maybe, hopefully, it's become much less dangerous with the collapse of the Soviet empire. If this is true, and I'm plainly jaundiced, the question now becomes: How do we handle all these threats short of nuclear war. Frankly, considering all the enormous uncertainties surrounding the problem, I don't know, nor does anyone else. However, I've got my hunches on what ought to be done. "So nu?", you're asking me, "what are your ideas of getting us across the Red Sea and back to the Promised Land?" It just so happens I do have some fairly specific ideas to go with my broad hunches. Let's talk about them.

Short of an economic miracle that gets us back to fiscal solvency and responsibility, a very unlikely prospect, if we're going to be able to afford to realistically do anything about our defense the current defense budget will have to be drastically reduced and restructured. I'm not talking about saving money through a cosmetic "peace dividend", which has turned out to be a farce, but rather drastically changing our basic national security policy to give us a better

chance for peace by refusing to go on fighting conventional wars around the world, leaving that to others stupid enough to start and get into them, and use the immense amount of money saved to defend ourselves back here from threats from without. To be perfectly blunt and politically incorrect about it, I'm recommending that we do what recent U.S. Presidents have openly rejected, that we turn ourselves into a "Fortress America" that's willing to fight for its own vital interests but not those of others. I'm talking about an America that's more than willing to do business with other countries where it's in our interests to do so. I'm not talking about squandering our money protecting unscrupulous countries (most of them are) who couldn't care less about our well being unless it enhances theirs.

What I'm proposing may be despised by our foreign policy establishment and the Presidents it controls, but I suspect that George Washington and our Founding Fathers would gladly embrace these views. After all, as it's turned out, based on my sad experiences, I've gotten these views from them, who had their own sad experiences, who were far more profound than myself in expressing them and had a more elegant command of the language as well.

Recent American Presidents have been systematically wrecking this country by holding to the myth of a stable, peaceful and even altruistic world. Our first Presidents were deeply cynical of the rest of the world and had the realities of history to back them up. Were Americans to take a look at the advice of those who put this country together, and reflect on how their advice applies to our current security problems, I suspect Washington and his immediate successors, who would never even make it through the primaries given the media scrutiny of today's candidates, would emerge even more heroic than history has made them out to be. This is a government of, by, and for the people, who ought to give this some thought in deciding whom to install in high office these days.

What should we do about the nuclear threat, whatever it is? Well, for startoffs, if we don't expect to get into a nuclear war with Russia and we wouldn't know how to fight one if we did, logic dictates that we remove strategic weapons from the force that can't fight one, leaving those elements which, hopefully, are best capable of deterring one. This means scrubbing our land-based weapons — ICBMs and bombers — which long and hundreds of billions of dollars ago should have been discontinued.

Even were these delivery systems capable of attacking the bulk of the Russian land-based strategic nuclear forces, a most dubious proposition in view of our woefully inadequate intelligence; to assume, as we have that the Russians would ever let these weapons leave their bases, when they could be so easily wiped out in a surprise nuclear attack, defies all logic. It also flies in the face of what the Soviets have written in their official military literature, where surprise is a cardinal doctrinal tenet and which holds to a brand of military logic which even Aristotle, the founder of deductive logic, would have drooled over, and Henry Kissinger, before it became politically inconvenient, thoroughly endorsed. The Pentagon, however, which feels bound to giving all branches of the services as equal a break as possible in dividing the budgetary pie, while honestly admitting to the vulnerability of these forces has dishonestly refused to admit they can't fight in any meaningful way. As a result, in developing new ICBMs and bombers over the last two decades, fiasco after fiasco has occurred,

at tremendous cost, and most of what we now have in the force represents weapons that go back two or three generations.

The one component of the so-called “Strategic Nuclear Triad” which has been invulnerably deployed is the nuclear ballistic missile submarine. Powered by nuclear reactors that allow them to cruise beneath the oceans of the world, these vessels seem virtually guaranteed to provide us with any conceivable “reasonable” level of deterrence against attack on the U.S. When I say a “reasonable” level of deterrence, I haven’t the wildest idea how to quantify this, nor does anyone else. All I know is that the present submarine force, realistically maintained, is capable, at any given moment, of launching thousands of nuclear warheads having yields far greater than those which leveled Hiroshima and Nagasaki that can do indescribable damage to Russia — smashing cities, devastating the economy and producing a level of societal chaos almost impossible to imagine. The same would apply to any other country that might pose a serious nuclear threat to our survival. Based on an understanding between the U.S. and Russia that by the turn of the century a new treaty could succeed in reducing these numbers by some two-thirds or so, we still would retain a retaliatory capability that should ensure any rational country from attacking us. At least I would like to believe that. Not that conducting such a level of retaliation would at all be rational, it would be insane: but for another country to risk attacking us, knowing that such a reprisal could take place would be equally insane. But then, in retrospect, if one examines carefully the alleged justification for the strategic nuclear arms buildup, the whole process over the last few decades has been insane. Neither side has understood in any rational way, although they’re tried to think through these issues logically (the Soviets more logically than ourselves), what they’ve been up to.

Having said all this, rather than pick a number of deliverable warheads that should provide us with a sound deterrent posture, which can’t be done, since we seem to be heading down the primrose path of arms control these days, speaking for myself, whatever number of U.S. submarine warheads is arrived at, that’s just fine with me. Not that I believe this will provide an equitable balance between the two sides. I don’t. I still believe the Russians aren’t to be trusted and that a new treaty may very well leave them with a substantially greater nuclear capability than ours. Were I a U.S. senator deciding on how to vote on such a treaty, if I believed the standards for equitable treaties the government has established were at all reasonable, I’d vote against it. I’d also be part of a very small minority. But, for all the reasons I’ve been giving having to do with all the gross military and technical uncertainties surrounding the issue, I’d reluctantly vote to accept the political realities and vote in favor. And considering all the other worries I’ve been trying to worry you about, my sleep wouldn’t be any worse than it’s been.

As for other countries using nuclear weapons against other countries, if they’re so inclined to do that well let them do that. Sure we’ll agonize over such terrible happenings, but that’s their business, not ours. Look what they’re doing to each other these days even without nuclear weapons, which of course concerns us but still is none of our business, although we’re tempted on occasion to meddle in these imbroglios by once again dispatching troops to settle them. However, if this insanity involves nuclear weapons and we’re insane enough to wrap ourselves up in their nuclear insanity, like a nuclear war

between India and Pakistan, may God help us. Or if other major nuclear powers such as Russia, China, England and France feel obliged to become involved, which I suspect they have enough sense not to do, may God help them.

Were we to redefine and reduce our strategic nuclear deterrent along the lines suggested here, as brought out here, there still would be the problem of coping with limited accidental or unauthorized nuclear attacks. Surely, we're not going to start a nuclear war over such incidents, although who knows what passions might be released demanding we do so. However, it's generally agreed that, if feasible and practical, we should do something about these contingencies, which cannot be dismissed. Indeed, serious plans are being developed, but no commitment made for actual implementation, to deal with limited ICBM attacks. However, I'm bothered, awfully bothered, by the approach now being taken, for it may be quite effective, and then again maybe not, but however effective it may turn out to be, despite our best efforts the best may be none to good. It may not come even close to providing the American people the protection they require and desire — every poll over the years regarding defending against nuclear missile attack has shown we overwhelmingly want it but we have yet to be shown a system that the government is convinced will work. So the charade goes on with claims and counterclaims about missile defense effectiveness and cost, and we continue to be unprotected.

Perhaps you're wondering why I'm so bothered. Allow me to explain.

Early in World War II German scientists and engineers developed a new anti-aircraft gun of phenomenal effectiveness. It was tested exhaustively and so successful were the results that Marshal Hermann Goering, chief of the German Air Force and one of Hitler's closest henchmen, boasted that were one British bomber to penetrate a defense using this system and bomb Berlin, he would convert to Judaism. "If that event occurs", he declared, "you may call me Meyer" (a popular Jewish name at that time). So the British proceeded to bomb Berlin at will while Hermann stayed Hermann. As for how well the German anti-aircraft system worked out, estimates were that it performed at only about one thousandth the calculated efficiency that led to Goering's boast. Why?

To begin with, with all due respect to the German developers they had conducted their tests under highly limited conditions that ignored the real world of combat, where the enemy you're trying to do in may not want to be done in and can take countermeasures to avoid this outcome. What the Germans did they did extremely well, but their effectiveness calculations were based on assumptions that British bomber operations would conform to German calculational assumptions. (Sounds like a typical U.S. systems analysis and knowing our typical analysts as well as I do and the politically-driven ground rules that drive their assumptions, I can assure you that from the very beginning the pro-SDI analysts have played both sides in making their estimates, which explains their unbounded optimism that in but a few years we can get a tremendously effective system at bargain-basement rates, except that years later we still have no defense while they go on outrageously proposing new tremendously effective and cheap systems. And the game goes on while an increasingly jaundiced public and Congress cut their budget — deservedly so, I might say, in these budget conscious times.) As for the British, they chose not to be that jolly well cooperative and used tactics that made the Germans out to

be idiots. Like in the U.S, the Germans were taken in by a bunch of technologists who meant well and did well, and military analysts who probably meant well but whose thinking was so rigidly constrained they couldn't grasp the fact that the enemy was any different from the drone aircraft targets that turned out to be sitting ducks. This, in my opinion, is what we're in the process of duplicating, except that I see no way out of this situation so long as U.S. policy constraints, which have hurt the country more than enough, continue to dominate the anti-missile program.

You'll recall the earlier story about the dismal failures that occurred when we tried firing Minuteman ICBMs out of silos, under simulated operational conditions; war was afoot and the President had pushed the button. Now keep in mind that this was a test where everything, I repeat everything, was under our control. You know very well that the missile crew knew full well what was being attempted and were really on their toes, and undoubtedly under considerable pressure to succeed. There had been no Soviet nuclear bursts in the vicinity that might have caused unknown launching problems (there was an attempt made before we started testing underground to conduct a nuclear test in some remote part of Alaska to get some idea of what might happen to a Minuteman missile in a silo after an enemy attack; but political pressures forced it's cancellation.) All we wanted to do was to get a missile out of a hole in the ground. Nothing was standing in the way of this happening, except that it didn't. No enemy stood in the way; for reasons we'll probably never understand, we stood in our own way. Strange things can happen with these elaborate high-tech military systems, built by manufacturers who would never dare turn out commercial products that way — they'd be out of business before they knew it. (U.S. Admiral Alfred Mahan, generally regarded as one of the greatest naval strategists of all time, once commented that navy ships and weapons should be designed by geniuses to be operated by morons. When it comes to hi-tech U.S. military weapon systems, I suspect that far too often the converse may be closer to the truth. I've met quite a few people who operate such equipment and I don't think they're morons — far from it. As for those who established the design requirements for these systems, I've already commented enough on their mental faculties, to say nothing of their intellectual integrity.)

For an SDI system, however, the game is far more complicated than simply firing a missile and hope it hits its target. The name of the game is not to go from point A to point B. Rather, it's to develop and deploy something that prevents point B from being reached, which means you've got to take into account an enemy who probably knows far more about you than you know about him and can foul things up on your side a lot easier than the other way around. In the case of the Russians, or the Chinese, or other countries that might acquire ICBMs, other than sheer politically-tainted conjecture, we know very little what they might do to foul things up on our side, and so far they're not telling us very much. As a matter of fact, when ridiculing Star Wars in the past the Soviets echoed the countermeasures schemes thought up by U.S. Star Wars opponents, while the U.S. Star Wars proponents were attacking their opponents. (I've gone through a lot of these arguments and counter-arguments and frankly, although my heart has been on the side of the proponents, on balance I found the opponents to be less unconvincing; which is to say that I found neither side objective and unbiased — it was more a question of which

side did the poorer job.) I haven't found it very reassuring to see the SDI people, in trying to sell the product, always managing to put our best foot forward and ultimately being caught up with and having their budget slashed. They don't deserve any better, but the country does; it badly needs such defenses.

There's still another philosophical factor to worry about. The history of using defensive weapons, especially the more complicated kinds, in anger for the first time generally has shown that the first time out we tend to strike out. Most things that could go wrong usually did. But the history we're talking about is the pre-nuclear period where if at first you didn't succeed the bomb dropped from the airplane you were trying to shoot down usually missed the target — unless it was terror bombing of a city, in which case your failure may have cost the lives of a lot of your countrymen. In most cases, if you didn't do too well at the beginning after a while you began ironing out the kinks and after a few weeks or months you might be doing pretty well, although far from perfect. In large scale conventional wars if you could exact an attrition rate of 10 or 20 percent against enemy bombers, you were doing remarkably well, well enough to force drastic changes in the enemy's strategy and tactics. If, however, a nuclear warhead is heading toward some city in your neck of the woods and you're using some SDI system for the first time, a 10, 20, or even 90 percent chance of disabling it would be totally unacceptable to the people in the city. Before they and the rest of the country are going to be willing to give out their tax dollars to the tune of 20 or 30 billion dollars, they're going to have to be convinced that the system is going to be pretty close to perfect, like Reagan claimed the original Star Wars concept would be, which was perhaps the most preposterous thing he said during his presidency, and he said some pretty preposterous things that I won't begin to list. For reasons that Hermann Goering would appreciate much better than myself, I would be inclined to doubt that any anti-missile system, for the defense of U.S. territory, or allies' territory, which is now under serious, but unrealistic, consideration, would come even remotely close to 100 percent effectiveness the first time around — in an age of thermonuclear warheads, seconds, thirds, and fourths don't mean very much. I don't find this prospect very reassuring, I'm afraid this will be the case. Were I chairing a House or Senate military affairs committee, I would swing my weight against deploying any such system.

Now the last thing I want to do is try and explain these antimissile systems to you in technical terms and how our experts calculate their presumed effectiveness. I've been away from the business too long, don't have a security clearance to find out precisely what's going on and couldn't tell you if I did, and, shame on me, I haven't bothered to keep up with the material that does get out into the media, except to say I wouldn't believe a lot of it anyway. However, regarding SDI and theater anti-missile systems based on protecting allies — not us, I doubt very highly that since I was put out to pasture in 1985, the government has changed its not-too-honest ways. I no longer have security clearances, but I'm sure they're playing the same old games, with each other and with us, and if they keep this up they're going to continue going nowhere.

To further illustrate what I've been philosophizing about, let's consider a recent real world happening which doesn't apply directly to SDI but does shed some light on the kinds of dishonesties connected with pushing for and against it. I'm referring to the vaunted and highly touted, at least for a while, Patriot air

and ballistic missile defense system. You'll remember after the Persian Gulf war ended, President Bush proudly announcing to the American people that Patriot had shot down 49 out of 50 Iraqi Scud ballistic missiles. You may remember seeing him on national television visiting the Raytheon company in Massachusetts, who developed and manufactured Patriot, praising them to the skies and sending their stock skyrocketing. (The SDI advocates were in high heaven, claiming this fantastic success put to shame all those doubting Thomases, like myself. To dilly-dally any further on deployment would be inexcusable. Bush put in for more money to Congress, and got it.)

I remember having dinner with Bennie Schriever at the time, during which I expressed my amazement over Patriot's success. He wasn't that amazed, explaining that Scud was a very primitive missile, and shooting it down was a pretty simple thing to do; there was every reason to expect a howling success. I was still amazed, for the reasons I've just given, but who was I to doubt my President and if Bennie, fully cleared to know all the details of what had happened and a great SDI fan to boot, thought what had happened had happened, well I had to assume it had happened.

Well maybe President Bush didn't lie, but he certainly didn't tell the truth. A year or so later it emerged that Patriot's effectiveness hadn't quite been the 98 percent he claimed it was; maybe it was more like 50 or 60 percent, and some outside "experts" (expert in technology, like George Kistiokowsky, but holding to anti-SDI biases, like Kisty's anti-neutron bomb bias) claimed it was even lower yet. Maybe, even probably, I say showing my bias, it was. But whatever the effectiveness, however one judges this term in the context of damage — physical and psychological, it was irrelevant to the outcome of the Gulf war and inapplicable to the SDI issue. The point is that Patriot was far from 100 percent effectiveness; and this being the case, the case for SDI has been weakened considerably. Which saddens me immensely, for we need to defend ourselves. But the critical issue is: What do we do about it? My answer is that we should pick up what President Nixon began and then discarded more than 20 years ago: the SAFEGUARD ballistic missile defense system, which was based on the extremely good judgment that the best way to defend against nuclear attack is to employ a nuclear defense. (Of the two kinds of defensive missiles developed for SAFEGUARD, one of them used, of all things, was a neutron warhead. Strange indeed, that a warhead designed to save American lives in America was rejected by America for saving American lives. But as I've said here time after time, don't look for logic in our military decisions when nuclear politics are involved.)

From its very beginning it was clear that our SDI program was going to be based on non-nuclear defenses. From the very beginning I found this decision to be technically absurd, illogical and downright immoral. Non-nuclear schemes, which have been described as having to "hit a bullet with a bullet", call for such design complexities as to practically ensure that if anything can go wrong it will. To destroy an incoming nuclear warhead calls for the most exacting precision, which may be theoretically attainable but if not exactly attained can result in an unspeakable tragedy — like there goes a major U.S. city. Armed with an appropriate nuclear warhead, such as a low-yield neutron warhead, a near miss can destroy the incoming enemy warhead and save the city, and at the same time do no damage to the city. So I would ask of you and our national security policy makers in Washington: What's wrong about using a

kiloton defensive nuclear warhead to save a city from the horrendous effects of an offensive megaton warhead? In my own simple-minded way of thinking, in no conceivable way can I see anything wrong with this defensive criterion. In my government's way of thinking, however, there's everything wrong with this approach, for one very simple reason: it's nuclear! It's okay for the other side to destroy us with nuclear weapons but it's fundamentally wrong for us to defend ourselves with non-destructive (to ourselves or anyone else) nuclear weapons. It's the same "logic" we applied to the Persian Gulf war where the Iraqis could use weapons of mass destruction against us but we rejected out of hand using nuclear weapons even more discriminate than conventional weapons against them. (I might say that the Soviets, based on their declarations and what intelligence we have on them, long ago began the deployment of a nation-wide anti-missile system based on nuclear warheads. It's entirely possible, I believe highly probable that this system, fully modernized, is in place today. If so, how capable the system may be is anybody's guess, but it's bound to be far more capable than the non-nuclear schemes the U.S. insists upon. However, this possibility, which was hotly debated at the time we were arguing over the ABM treaty, and dishonestly resolved, thanks mainly to the CIA, never comes up in the current SDI debate. I find this highly worrisome, but in view of all the nuclear arms control activity going on these days, to try making it an issue would be a colossal waste of time. The government wouldn't listen and the American people really don't seem to care.

I happen to know a number of people who were instrumental in getting to President Reagan and convincing him to go for SDI. They were some of the most dedicated concerned Americans I've known. The moral underpinnings behind their convictions were, in my mind, impeccable. On the other hand, and I'm being shamefully brutal here, some of them were unabashed promoters and Madison Avenue types who seemed, at least to me, at least as interested in pushing their own pet ideas and themselves as well, as SDI itself. I apologize for what I'm about to say about of couple of them, both of great national prominence and great accomplishment, but I'm going to say it anyway.

First, let's pick up Daniel Graham (Lt. Gen., U.S. Army ret., and now deceased — R.I.P.). Danny, whom I've known on and off for more than 20 years, always had favored the U.S. having anti-ballistic missile defenses. He had put forth some of the most morally persuasive arguments on this issue I've ever seen. He first attached himself to Reagan shortly after his retirement in the mid-1970s, as a presidential campaign defense advisor. He also was a key advisor in the 1980 campaign, and had been a founding member of a public spirited committee that examined Star Wars prospects and made recommendations that we proceed forthwith with the concept, which Reagan, when he became President generally accepted and Star Wars became an earthly reality. (This never would have happened had Carter been elected.) However, Danny was of an unshakable belief, or at least seemed to be, that ballistic missile defense could and should be accomplished by non-nuclear means.

When Reagan came into the White House, Danny was one of the few people out of government who had direct access to the President on this matter. Without a doubt he had considerable influence in shaping Reagan's position, and in no small way helped persuade the President into expressing the belief, reflected in his famous Star Wars speech, that a non-nuclear space-based

defensive system, at the most reasonable price imaginable, could provide a protective shield over the country that could virtually neutralize the massive Soviet ICBM threat, judged to be the greatest threat to nuclear stability. From a moral standpoint, nothing could be more desirable, for this would allow us to pull away from massive thermonuclear retaliation which was militarily, politically and morally indefensible.

Now who in their right mind could disagree with attempting to reach such a noble objective? Well, there were quite a few who would and did, for various reasons. There were many, who I would not describe as citizens who had much trust in their government (sounds like me) who believed it would be immoral to have a foolproof defense on the grounds that the U.S. would take advantage of this military asymmetry to get rid of the commie threat for once and for all by attacking the Soviet Union and getting off essentially scot free. I don't know what to do about such people, except to pray for them; our government never has worked that way. When the fate of the world is so directly involved, no U.S. government, even if headed up by President Hermann Goering, is capable of making such a decision, regardless of how it may feel about its defensive capabilities. Morally and politically, a foolproof defense stands on its own merits. Many others didn't fault the objective of Star Wars but didn't think it was technically achievable. For a number of reasons they just didn't feel that the technological potential at that time was sufficient to meet such stringent defensive requirements. I spoke with a number of them at the time, and having a high respect for their intellectual integrity and professional competence, I was inclined to go along with their reservations. However, regardless of whether their reservations were technical, political or moral, none of the opposition had given serious thought to a nuclear Star Wars system. It was nuclear.

Some years ago I was on a radio talk show with General Graham, discussing SDI. The host, a friend of mine and Graham and a strong proponent of SDI, figured the program would be a love feast, with the three of us forming an SDI glee club. It didn't work out that way.

Danny, a very loquacious and logically persuasive guy, was the stellar performer. For the first 5 or 10 minutes he totally dominated the show, making his case for an impregnable Star Wars system. Since I was in his corner philosophically, I chose to keep my mouth shut and let him make his case, which he did with great elegance. Finally, the host, to give some semblance of equal time to his guests, interrupted Danny and asked me for my comments. Although I had my technical and military reasons for expressing some doubts on his claims, for reasons I've given here, not wanting to appear to be against SDI, I chose to question him on moral grounds — not to question his moral objectives but his preferred means of attaining them.

"Danny", I asked, "why is it that you're giving sole emphasis to a non-nuclear defense when the most elementary technical considerations show that a nuclear defense is the cheapest most effective way of coping with a nuclear attack? Why is it, when millions of American lives and the country's very survival are at stake that the President prefers a second-best defense concept? Isn't it immoral not to defend the American people with the most effective means available, namely nuclear means which the Nixon administration did? President Reagan has defended his position on SDI by claiming, correctly and morally, that it is better to have a policy resting on the premise that it is better to save lives than to take them and he was talking about saving Soviet lives as

well as American lives by being able to discard massive nuclear retaliation through having an effective SDI system. He's certainly right in saying this, but is he right in not giving a nuclear SDI system the highest priority?"

I received a very long non-answer from Danny, the only kind he could have given under the circumstances. I felt I had made my point, but I also felt compelled to go beyond moral considerations and get into military ones.

For years prior to his retirement from the Army, Danny had been an intelligence officer, serving in a high capacity in the CIA and winding up his illustrious career as Director of the Defense Intelligence Agency, the top intelligence job in the Pentagon. We had previously discussed our intelligence deficiencies, especially regarding Soviet strategic nuclear capabilities. At no point had he contested the claims I've made here regarding our inadequacies in this area, which spoke well for him. But this was strictly between two "insiders", who knew they couldn't fool each other, not that many of them don't try; it wasn't what you talk about on a talk show or any other public forum. Nevertheless, being my normal rebellious self when I think something is important enough to justify getting out of line a bit, I choose to discuss it.

"Danny", I asked (really unfairly I must admit), "considering how little we know about the Soviet threat and you know how little we know, how can anyone make responsible estimates on what our true SDI requirements are and how much the system will cost? What reassurances can you give that your estimates are valid and that we won't wind up with costs much higher than you've been predicting?" (At that time, as I recall, Danny and his cohorts were claiming a super-effective Star Wars system of their preference would cost less than \$20 billion, far lower than any other estimates I was aware of. On the other side, mainly from academia where scientists who don't rely on the Defense Department for part of their income can exercise some independence, or are willing to risk part of their income by showing some independence, many were claiming the cost could well exceed \$100 billion, although their numbers were equally as challengable as Graham's. I wasn't technically competent enough to judge the quality of either side's estimates, but based on the miserable record of the Defense Department in developing new high-tech weapon systems, I thought the higher levels were closer to the truth (whatever that was), despite knowing that ideologically most academics were disposed against SDI.

Once again, I got a long non-answer. By now, however, I figured I had registered my views with the listeners and elected to keep quiet while the host led Danny on to say other nice things about SDI. Which was fine with me, since I preferred to say nice things about it too and what I had said was in no way being un-nice about it, rather I was just trying to talk sensibly about it.

Next let's pick up the indomitable Edward Teller. For understandable reasons, having to do with his role in the H-bomb development, for many years Edward's military preoccupation was with SAC and more and more effective strategic nuclear weapons. I could be wrong here, but over these many years, when I saw a good deal of him and had many discussions, including some where he actually solicited my opinions, I don't recall him having any particular interest in battlefield nuclear weapons (as did Oppenheimer, and maybe that's why Edward didn't) or nuclear ballistic missile defense. To a first approximation, his nuclear passions (and he loved nuclear weapons with a passion) approximated those of the Air Force which had so fervently supported him during the H-bomb struggle. And since he had founded the Livermore

laboratory, his nuclear passions tended to focus on the work his laboratory was doing and it usually did what he wanted it to, even when he wasn't officially directing it. He loved Livermore with a fierce intensity and usually fought tooth and nail pushing its projects, especially those in which he had a hand getting started.

(Regarding his lack of interest in battlefield nukes, shortly after I began picking up a lot of notoriety, and success as well, in my neutron bomb promoting, at a time when Edward was Livermore's director, I bumped into him in the hall at RAND. "Sam", he told me, "I wish to express my great appreciation for what you have been doing and I want to congratulate you. [He should have, for I had given his lab an exciting new project for the first time in years.] Now please, Sam, would you be so kind as to tell me what you have been doing?" He knew full well what I had been doing, but since it wasn't a bomb of his or his lab's invention and he didn't care for these kinds of weapons anyway, he put on the only act he was capable of — in the best of humor; he had a smirk on his face from ear to ear. Feigning innocence and hoping to get a fruitful discussion going, I began describing my activities. No sooner did I get started when he spotted Herman Kahn, thanked me and walked away to talk with Herman, who loved H-bombs [the bigger the better; the nuclear "Doomsday Machine" in Dr. Strangelove was a creature of Herman's unlimited imagination] and had no use for neutron bombs — they ran against his military theology. He was all in favor of fighting an all-out thermonuclear war that might devastate a fair fraction of civilization, to settle an argument with the USSR, but was dead set against using discriminate nuclear weapons that could settle arguments on the battlefield without devastating everything in sight. Genius, when applied to human problems, can manifest itself in strange ways.

In 1977, however, when the great neutron bomb debate began in earnest over two warheads his lab had developed, Edward could hardly wait to get into the fray on the side of the Bomb, speaking out to Congress, the media and anyone willing to listen to him. Why the change? I've already explained this to you, but not entirely. Not only did he love things nuclear and his laboratory; but he loved being in the limelight. Regardless of what his real feelings on the neutron bomb may have been, and it's entirely possible they may have changed from the previous period, if any issue arose that captivated national attention, where nuclear weapons were involved, he wanted attention. He always got it.)

As for defending against ICBMs, the first time I remember Edward showing any real interest in the matter was back in 1969 when Nixon pushed for the SAFEGUARD system, where one of the two nuclear warheads to be used was to be developed by Livermore. However, with SAFEGUARD's demise and the signing of the ABM treaty, public interest over missile defense pretty well dropped out of sight, and so did Edward's. However, in the late 1970s, when Reagan, a pal of Edward from his gubernatorial days in California, was renewing his bid for the presidency, Edward climbed back aboard the antimissile bandwagon, knowing of Reagan's keen interest in the matter, which stemmed, as I've mentioned from the influence of his friend and legal counselor Larry Beilenson.

Around this time, Livermore had commenced work on a nuclear-powered laser that would emit an intense beam of X-rays. Traveling at the speed of light, in theory, accurately aimed this beam could destroy an ICBM in space at a great distance. It was real Buck Rogers, or Star Wars, stuff that seemed to have

considerable potential, but was requiring of extremely advanced technology. I remember being briefed around this time by the project director, Roy Woodruff, a Livermore acquaintance of mine, who waxed quite enthusiastically about its prospects, which I personally thought were dim indeed because of its complexity and certain operational limitations, but kept my mouth shut over these reservations. (I don't believe in throwing cold water on any new concept because one never knows what kinds of applications may emerge.) Equally enthusiastic was Edward, who fought vigorously for his lab's nuclear concept and opposed non-nuclear concepts held by people such as Danny Graham.

When Reagan became President, both approaches were hyped to him and his administration. However, when he came out with his Star Wars speech, the major emphasis, by far, was on the non-nuclear side, for obvious political reasons — it was non-nuclear. As Reagan's Defense Secretary Caspar Weinberger said shortly after the President made his dramatic announcement, it was necessary "to get a basically thoroughly reliable defense against incoming missiles, the opportunity to destroy the missiles preferably by non-nuclear means..." The nuclear X-ray laser program was allowed to proceed and, needless to say, publicized to the skies by Edward and his colleagues as a sure-fire solution to the problem.

There was more than one problem to this sure-fire solution. Not only was it nuclear, and most people were very uncomfortable with the idea of nuclear warheads orbiting around in space; but experiments on this concept weren't proving out to be nearly as encouraging as portrayed by Edward. It finally came to the point where Roy Woodruff refused to go along with this chicanery and blew the whistle on the program. Which was the end of the program and the end of Roy whose integrity cost him a humiliating demotion at the lab, where he had been in charge of all new warhead development. Roy became a hero in my book and I called to congratulate him for his courage, welcoming him to the pariah club. He finally left Livermore in discouragement, but was able to transfer over to Los Alamos. Which is more than I can say about myself; when I was forced out of my job there was no place for me to go except into retirement. As for Teller, even though his nuclear defense dreams had come to an end, by no means was he about to get out of the act and bow out of the SDI program.

Seeing the handwriting on the wall for nuclear solutions to SDI, some of Livermore's most innovative scientists began working on a non-nuclear space-based concept. The idea, called Brilliant Pebbles, envisaged a number of satellites carrying scads of small hypervelocity guided missiles capable of intercepting giant multiwarhead ICBMs during the so-called "boost phase" — while the rocket motors were still operating, providing a tremendous source of heat to be picked up by the guidance system of the defensive missiles as a homing source. Calculations indicated this to be the most cost-effective system of all, for perhaps several billion dollars (the cost of a handful of Stealth bombers) this system could deter a Soviet first-strike attack on the U.S. In fact, by placing more satellites in orbit, with the attendant but hardly excessive increase in cost, Brilliant Pebbles could protect the whole world from long-range ballistic nuclear missile attack. (You already know my feelings over the veracity of such claims and my considerable skepticism over such proposals, especially in the absence of any meaningful testing, which is prohibited by the ABM treaty. However, for all sorts of good and bad reasons Congress has

slashed the Brilliant Pebbles budget and like the X-ray laser, it seems headed for oblivion. Perhaps just as well, but I hate to see something canceled that in theory has so much to offer.)

Also seeing the handwriting on the wall was Teller, who after a lifetime of promoting anything and everything nuclear now jumped ship and latched on to Brilliant Pebbles. He proceeded to promote it everywhere, including the Oval Office where Reagan listened attentively while Edward and his Livermore cohorts showed him the way out of the wilderness. It really shouldn't have, but this shift to a non-nuclear SDI by Edward really bothered me. In fact, I was outraged to see him join the ranks of those he had formerly fought with, for no good reason, as far as I can see, other than to be able to stay on the playing field. Very few people are as bright, perceptive, understanding and fantastically intuitive on technical matters as Edward Teller. Although he may have acted parochially on many an occasion when he shouldn't have, when it came to distinguishing between the power of the Atom and that of chemical explosives Edward always had fought for the cold, hard, scientific truth — unless you're trying to bring down a crippled blimp or some equivalent objective, there's nothing like a nuclear explosive. (Had Goering's antiaircraft weapons been tipped with neutron warheads, to incapacitate the British bomber crews, he wouldn't have needed the assurances of his technical analysts, nor would it made any difference if the British had performed whatever countermeasures they could think up; it would have been extremely doubtful that Berlin would have been bombed to any extensive level. Their bombers may have stayed out of the way of high explosive warheads, but there would have been no way to stay out of range, on the order of miles, of nuclear warheads.)

Knowing this, I would assume, why didn't Teller stick to his guns and issue a warning that SDI might be doomed to failure if its developers did not stick to the physical facts of life, and its political proponents did not give up their nuclear mythology and pay attention to the basic moral underpinnings of the matter? What matters is to save lives, regardless of the technical means employed. Had he been a typical political operator on the national defense scene, I easily would have understood Teller's shift to the non-nuclear side. But that never was Edward's style of operating; when he believed in a cause he always had fought for it, frequently more from the heart than from the head. But he had been a grimly determined believer and never had jumped ship on an issue he knew in his heart was right; taking his chances on public scorn which he got by the megaton. But suddenly, for reasons he never satisfactorily explained, he turned his back on what he must have known to be the best approach to defending against nuclear attack.

Nobody lives forever, and Edward, who's well into his eighties, is no exception. With all the severe medical problems he's had for so many years, it's a miracle he's still around. Hopefully, maybe even probably, he'll be around a good while longer; but it won't be unlimited. Before he goes off to the great beyond, I sure wish he would return to the nuclear fray and in his own impassioned, and still hypnotically effective, way return to his old-time nuclear religion. I'd hate to see him pass on with a non-nuclear whimper. Despite the fact that I've had my disagreements with Teller over the years, we've almost always been soulmates on critical security issues. He remains in my mind a true American patriot. Yet, here I am being almost scurrilous, for my own stringent reasons, accusing him of shabby behavior. Maybe it is, that's for you to decide,

but who am I to pass judgment on a man of such great accomplishment, in science and dedication to his adopted country? If there's any real shame to be ascribed it has to rest with me, for what have I done in any tangible way to add to anyone's well being? Unless you feel that stirring up the pot on unresolvable issues is a contribution to our well being. I don't think so, but I don't care to pass on without getting my feelings off my chest, whatever they're worth. They're worth a lot to me.

When President Reagan began the SDI program in 1983, he must have known, or his advisors must have told him (or did they?) that unless the ABM treaty were drastically modified or even canceled, which he had every right to do under the terms of the treaty, that the program would never come to fruition. Underlying every nuclear arms control treaty has been a formal understanding that if either side feels its "supreme national interests" to be in jeopardy, it can back out after having given due notice. In explaining the consequences of not having an effective defense against nuclear attack, Reagan left little doubt that under such conditions the U.S. would remain in dire jeopardy. For its survival depended upon the thin line between war and peace, not only between the U.S. and the USSR but between the USSR and U.S. allies whom we had sworn to protect even if it meant starting a nuclear war to do so.

Having committed himself to SDI, the logical thing for Reagan to have done was to bow out of the ABM treaty posthaste. But the U.S. doesn't work that way. It never has and unless and until we get a President with the political courage to place his country's survival over adhering to arms control treaties that other countries habitually have broken, the Soviets being the best treaty breakers of this century, any hope for any kind of an effective antimissile system is from slim to none. If we really want such a defense, and all polls show the American people overwhelmingly want to be protected from nuclear attack, we have to back out of the ABM treaty and do the most practical thing in the shortest possible period of time to get an affordable SDI system that can protect the United States, and only the United States. And I want to emphasize as strongly as possible, this does not require exploding nuclear warheads. We've already got more data on nuclear warheads effectiveness, from our underground testing, than we can profitably use. As for the rest of the world, if it so desires, let them figure out how to protect themselves — at their expense for a change. Not being bound by treaty as we are, they could plan for such a defense starting tomorrow, and I hope we'd be more than willing to help them, at a price.

As to what kind of an SDI system we should develop and deploy, you already have my answer: a system based on nuclear warheads, as we did some two decades ago with SAFEGUARD and what the Soviets most probably have been doing all along, nation wide. As for the characteristics of such a system, here we can tap into the very substantial progress made in the SDI program toward detecting, tracking and intercepting incoming nuclear warheads, wherever they may be coming from. And being freed of the shackles of the ABM treaty, we would be able to test out such a system to our hearts content. As to how well it might work at a moment of truth, I'm not prepared to say. What I will say, however, is that if the system is designed to cope with limited attacks there is good reason to believe that it can work very well, even if we don't know the specifics of the threat — a well-planned nuclear defense can

make up for a lot of slop in our knowledge of the threat, in contrast to a non-nuclear defense. Finally, whatever it might cost, and nobody can say until we complete such a development, I can assure you that if we slash our conventional forces for fighting wars around the world to the degree I've suggested, and restructure our strategic offensive forces along the lines I've recommended, the cost not only will be affordable, it will be irrelevant.

How soon can we accomplish such a development? If we go about it the way we have for other major military developments, the answer is at least a decade, with the distinct possibility that the program may be mismanaged, with huge cost overruns (such as the Stealth bomber program), to a degree where an angry Congress emasculates it. If we go about it the way we did in developing the ICBM — get a President who's willing to place top national priority on the effort and demand personal progress reports; arrange for the second coming of Trevor Gardner; and bring Bennie Schriever back to active duty (he's just about as energetic now as he was more than 40 years ago when Trev picked him to manage the missile development) — I daresay the job could be completed in a handful of years, maybe even less. I would remind you that our original ICBM program was about as technically daunting as SDI appears today, but in a few years after getting the green light from Eisenhower the system was operational. Yet, after some 15 years of spending extravagant sums of money, with wild claims and counterclaims being made, and theological debates still going on, heaven only knows when, or even if, we'll field a system. Nothing short of a national commitment and a dedicated President will do the job within the required time — as soon as possible.

Once again, I'd like to pound home to you that if this miracle is to happen, two fundamental decisions would have to be made: The ABM treaty must be scrapped, entirely, to ensure that no arms control roadblocks stand in the way of what has to be an unfettered development; and the system, whatever its characteristics may turn out to be, must be based on whatever nuclear warhead, or warheads, seems best suited for the job — it must be nuclear. As one disgruntled, disillusioned, but concerned citizen; were these two decisions not made, I for one would be dead set against continuing with the SDI program in its present form. My opinion, for what it's worth, is that to go on as we've been going will waste additional billions of dollars that could be applied far more effectively toward saving American lives, like improving medical care. Needless to say, this puts me 180 degrees out of phase with our government; but what else is new?

I'm not about to claim that that any limited SDI system has a realistic chance of being 99 percent effective in stopping limited numbers of ICBMs that may be accidentally or deliberately launched at us. Rather, I simply wish to repeat that such a system represents an extremely sensible investment of our defense dollars and has the potential for avoiding unspeakable catastrophe. Suppose, however, that despite all our efforts, with no holds barred toward getting the most effective system possible, we're unable to prevent a handful of nuclear warheads from impacting on a handful of U.S. cities. This is a terrible possibility, but one that can't be ruled out.

Suppose I were a bureaucrat working in Washington, D.C. and heard a siren that told me that in 15 or 20 minutes a nuclear warhead might go off someplace

in the vicinity, if SDI can't quite do the trick; or *will* go off if there's no SDI to intercept it. What would I do?

Speaking for myself, I would do nothing. Outside of that I'd just sit there (no point in trying to call home, the lines would be hopelessly jammed, or try to go home, D.C. traffic at going home time is horrible enough as it is) and wait for the flash, which would be very familiar since I've seen any number of A-bombs and H-bombs being tested. I'd expect the worst, and maybe even deserve it.

Now if the government had spent some money, far less than the cost of an SDI installation protecting Washington, preparing civil defenses — taking advantage of underground parking facilities, storage basements in buildings, the Metro line, plus constructing shelters, and I bolted for the nearest such facility, my prospects for surviving could increase very substantially over just sitting there. This isn't to say there would be much left in the vicinity of the burst. There probably wouldn't be, but the monuments — the Washington monument, the Lincoln and Jefferson memorials, and a few other pretty tough structures — might fare pretty well. But all depending on how one values one's life, when I came out of the shelter a few days or weeks later, I might be grateful to still be alive so I can work my way back to my family in the Virginia and Maryland suburbs who, had civil defense shelters been constructed in my neighborhood would stand a far better chance of being alive than me. Add to this the very high probability my house would receive but minor, if any, damage — depending on how far out in the suburbs it was. I'm sure I would be going through hell in my D.C. shelter worrying about my family, but if I knew my family had access to an effective shelter system I might be inclined to worry a lot less.

Anyway you care to look at it, a nuclear warhead bursting on Washington would be a horrific thing. All that I can say in this regard is that throughout history, including recent history, there have been catastrophes — natural and man-made — comparable to a nuclear bombing of Washington; and somehow or another people have picked up the pieces and gone on with their lives. Take a look at Hiroshima, Nagasaki, Tokyo, Yokohama, Berlin, Frankfurt, Dresden, Seoul, etc. today, as compared with how they looked after they had been bombed and shelled to rubble in war. Or at towns and cities that have been devastated by earthquakes, fires, hurricanes, floods, whatever. If there's a will to survive, carry on and go onward and upward (maybe to the next war), civil defense represents the best and cheapest bet.

What I'm driving at is that, in my opinion, it makes precious little sense for the government to spend a huge amount of money on an SDI system (even one of my liking) while at the same time, for but a fraction of that money, neglecting to build an effective civil defense system which is virtually guaranteed to be far more effective in saving lives. We may have little solid evidence to predict how well sophisticated weapon systems may work, but the evidence that an appropriately designed shelter system will work is overwhelming. This being the case, you're probably wondering why the federal government, after Ronald Reagan's inspiring and highly moral Star Wars speech, didn't make a pitch for a national civil defense system to go with it. I can't give you a logical answer to this question, but then there aren't logical answers to matters where politics, as usual, is the driving force, and in this case politics is spelled MONEY. However, if you want my educated guess (educated

by watching our defense establishment at work over some four decades), the answer is that at the beginning the SDI proponents saw some really big money going into the program, maybe a hundred or more billion dollars if it were fully implemented to protect the entire country. Now that's a lot of money for the Pentagon, the defense industry and its congressional supporters to drool over. Lots of jobs and lots of profits; and also a lot more taxes to be paid, but who can worry about a tax increase when the President promises to save the lives of you and your family. As for civil defense, monetarily it's peanuts. Technically we've known how to construct these shelters for decades. All that's involved is the equivalent of pouring some concrete, installing blast-proof doors and a ventilation system, putting in some bunks and food and water, and you're in business, on the cheap. Not only will a properly designed shelter protect you from a nuclear burst, but also from chemical and biological agents that might wind up in your neighborhood.

As to who pays for civil defense, the government of course. After wasting trillions of dollars over the years for getting into wars that only took lives, the least the government can do is to spend some billions saving our most important national asset — our lives.

As mentioned, there are a lot of long-range nuclear bombers lying around that can create incredible damage if unleashed against the U.S. They may take hours longer to deliver their warheads than an ICBM, but a bomb that lands on your city is still a bomb, regardless of how it's delivered. Yet, for more than two decades, we've had no means against protecting ourselves against even limited bomber attacks. This deficiency has not come about by accident, but rather by design, based on the assumption that dealing with the Soviet ICBM threat was all that counted for deterrence. However, when accidental or unauthorized attacks are of concern, deterrence is not a relevant matter; the problem is to deal with very limited number of nuclear warheads that might impact on U.S. soil.

Nevertheless, during the 1960s we deliberately set about dismantling a very extensive air defense system designed to protect us against a massive Soviet bomber attack, to a degree where a clever and determined bomber crew with malice in mind could penetrate into the U.S. and do some terrible damage to more than one city. It seemed senseless to me at the time, but who was I to challenge the sagacity of our best military strategists?

At the same time we were emasculating our national air defenses, we were building up such defenses to protect our allies around the world. While we stopped defending ourselves back here, in accordance with our policy, also in accordance with our policy we were building up the most highly sophisticated air defenses to protect NATO, Japan, South Korea, Persian Gulf countries that produced a lot of oil, wherever we thought our national interests were at stake. Our national interests seemed to be everywhere except back home. These defenses overseas have become a thing of beauty, as has been demonstrated on any number of occasions, most recently in the Persian Gulf where we so overwhelmed the Iraqi air forces they refused to come out of their shelters and fight, or fled to Iran.

Now, however, the Warsaw Pact threat against Europe has disappeared, so has the threat from Iraq, at least for some time to come; but we still keep the bulk of our air defenses abroad. Completely apart from changing our policy of

military intervention abroad, we should take steps to transfer this capability back home — at our borders and off our shores, without having to go to the cost of developing a new defensive network. This should be done as quickly as possible.

What should we do about the chemical and biological threat, and, even more importantly, since this is one of the more serious ongoing threats facing the country, about drugs? Although they can be drastically different in their effects and the way they reach their victims, they're all directed against people. The people I'm primarily concerned over are Americans.

Although chemical and biological agents can in theory be delivered by ICBMs, thus far the possibility of effective delivery and dispersal of these agents by this means seems remote. However, it can't be ruled out, but the problem of defending against it is basically the same as defending against nuclear-armed missiles. Bomber delivery of these agents is a different however, however, and is perfectly feasible. But we've already discussed defending against limited ICBM and bomber attacks and the same message holds: we should do something about it, through active and civil defense measures. Which leaves us with the problem of dealing with the real threat, as currently perceived by most Americans: the smuggling of drugs into this country, which has had terrible consequences for U.S. society, ruined the lives of countless Americans, and in terms of dollars and cents has exacted enormous costs.

In recent years we have spent billions of dollars trying to deal with various aspects of the drug problem. To date the results have been far short of balancing out the costs. Drug consumption, if you believe government statistics, which I don't, has gone down in certain quarters of U.S. society and up in others; drug-related crime problems seem to have remained about the same (awful); and one thing most people will agree upon is that the problem isn't apt to improve significantly despite all these measures being taken. In despair, some very reputable and distinguished Americans (including a former Secretary of State and a Nobel Prize winner in economics), have advocated legalizing these substances, arguing that this at least would bring down the carnage, the obscene profits, and the depletion of users bank accounts, that go with the trade. If I thought the situation was as hopeless as these prestigious people think it is, I'd be inclined to go along with them. But I can't, for two reasons: (1) The mentality of these erudite souls is approximately that of those in government who dictate our SDI policy — namely, they let their ideologies dominate over common sense and reality; and (2) They seem to prefer to live with the problem rather than taking draconian measures to solve it. I think they're badly wrong on both counts. As I've said, the best way to avoid disastrous foreign wars is to take away our means of fighting them. With respect to dealing with the drug problem, I believe the best way to deal with drug consumption and addiction is to deny the users access to these substances by denying the providers entry into this country, which they now can accomplish with consummate ease.

Were we to change our Navy's role from protecting the sea lanes of the world, that no longer need that much protection and which other countries' navies can pretty well manage without our help, and enforcing an embargo on Iraq that isn't working all that well, they almost never do, and assign some fraction of our ships to patrolling the waters off our coast, I dare say precious

few drug-carrying vessels would make it to our shores. Also, in establishing an air defense network to prevent high-performance bombers from penetrating our borders, I dare say that precious few low-performance aircraft could penetrate this system to deliver drugs into the country. For those who say such measures would be too harsh, I would say that these are measures we have to take when we're at war, and since practically everyone seems willing to admit we're in a war against drugs, these should be commensurate with the threat. If sinking drug-carrying boats and shooting down drug-carrying aircraft can prevent tons and tons of cocaine from getting into this country and ruining countless thousands of lives and costing the country billions and billions of dollars, well so be it. As we found out in Vietnam if you unrealistically constrain what you can do to keep the enemy away from what you're trying to protect, you not only fail to protect but you lose to boot. It was criminal, in my opinion, to lose the Vietnam war through such unrealistic ground rules for fighting it. It would be equally criminal, in my opinion, to lose the drug war for the same reasons.

So much for our defending our air and sea space to prevent the infusion of drugs into the country. If we want to and are willing to play as tough as the drug traffickers, we can beat them in these areas. However, doing so still would leave us with the major drug smuggling problem: the passage of drugs across our 2000 mile border with Mexico where, it is believed, most of the drugs make their way into the country — on the backs of illegals, in cars and trucks, on burros, you name it. Given the tactics the traffickers use, it is virtually impossible for the U.S. border patrol to cope with the problem and it would be inexcusably expensive to place military forces along the border, and probably wouldn't work too well anyway, no more than our efforts to stop the North Vietnamese from infiltrating into the South during the war. Given such a long border, the traffickers can choose their points and times of entry, posing U.S. manpower requirements that in all probability would be deemed unacceptable and too costly. Since even a small fraction of the drugs getting through can cause such enormous problems, the problem must be viewed similarly to dealing with a limited nuclear attack. The defense has to be more than just very good; it has to be close to perfect. It can if we go about it realistically.

If we're going to be serious about this problem, we're going to have to put up a "wall" along the border that drug traffickers (or anyone else for that matter, including illegal aliens who are ruining my once great state of California) can't get over, under, or through. It just so happens, based on some work I did during the Vietnam war, that some years ago, when the drug scare was at its peak, I devised such a fence that could be close to being 100 percent effective (if you'll excuse my immodesty) and could be constructed and manned at but a fraction of the cost of conventional approaches the border patrol or the military might take. If you subscribe to the neutron bomb discriminate defensive concept, you might wax even more kindly toward this approach, which not only is non-destructive but non-lethal as well — and isn't even nuclear. All it does is to place a barrier in the way of people who would bring drugs into the U.S., and, conceivably chemical, biological and nuclear weapons as well. At the same time, it would prevent illegal aliens from crossing the border with no significant danger to their lives, which, speaking for myself, I don't think we should take for the sole purpose of keeping them out: most of them, including women and children, come in to be able to lead a better life. What they do is illegal, at least to us, but it doesn't call for the death penalty.

Very similar to the operations of the North Vietnamese and Viet Cong, drug traffickers and illegals (many of whom traffic drugs) have certain basic limitations in trying to cross the border. They don't have access to modern military equipment or protective gear to counter measures a conventional border defense might take, including trying to kill them. Also, to minimize chances of detection and capture, they prefer to operate at night. Combining these factors, what strongly suggests itself is the construction of a hi-tech barrier along our southern border which capitalizes on these deficiencies.

Such a barrier would employ conventional physical obstacles to impede people and vehicles, aided by sensors of the type developed during and since the Vietnam war to pick up the traffickers presence and location, and having pinpointed them would employ a combination of flash blindness charges and non-lethal chemical agents to incapacitate them long enough to prevent them from penetrating the barrier and allowing us to pick them up and do what we're now doing to them — sending them back to Mexico, if they're not carrying drugs, or incarcerating them for a long time if they are. (If I had my way, I'd bill the Mexican government a large number of pesos for every trafficker we caught, or cut off foreign aid to pay for imprisonment expenses and to help defray the cost of building and maintaining the barrier. I hold Mexico just as guilty as Columbia, Peru and Panama for allowing, aiding and abetting the production and flow of cocaine into the U.S.)

Perhaps you're wondering about the specifics of the incapacitants I'd use. As for the flash blindness mechanisms, a few pounds of very high intensity flash powder can immobilize, at night, those within the range of the sensors, for a respectable fraction of an hour, to a degree where they cannot penetrate the barrier's physical obstacles. (I remember a friend of mine who was at Alamogordo, New Mexico to witness the first A-bomb test ignoring warnings not to look at the burst for fear he might suffer retinal damage. He did take sufficient precautions to avoid such damage, but on the other hand he was so flash blinded that missed most of the show, which had him very unhappy.) Ignited at distances corresponding to the effective range of the sensors will in no way endanger the physical well being of the trafficker (or illegal), he just won't be able to see through the white spot in his vision to be able to do anything but grope his way around for a while. Fears of blindness run deep in the human psyche and chances are the person would be scared to death, let alone feeling terribly vulnerable to being caught. As for the chemical incapacitants (a modern hi-tech equivalent of the ether I breathed when I had my tonsils removed when I was a kid), literally within seconds they can stop one in his tracks and put him sound asleep for an hour or so, enough time for him to be picked up and properly dealt with. (The Israelis, who are far more concerned with the defense and survival of its people than our government is for ours, have developed a weapon that can throw out a stream of such an incapacitant to a distance of hundreds of yards.)

What about the morality of this defensive concept? I would answer this question in precisely the way I dealt with the neutron bomb and using nuclear kill mechanisms to defend against ICBM attacks.

We are being invaded by an army of utterly ruthless foreign mercenaries who are flooding this country with chemical agents we call narcotics which are doing enormous damage in terms of ruined lives, lives taken, and the degrading of our societal structure and economy. You can define this threat anyway you

wish, but like a rose is a rose is a rose, so is a chemical agent. In effect, deadly chemical warfare is being waged against us. Yet, our government policy being what it is, to defend against this threat, within our own border, by using non-lethal mechanisms of the types described here somehow is believed to go against the grain of civilized warfare. Is this moral?

Is it moral to use a flash charge against a terrorist holding hostages, a common practice these days, but immoral to do the same think to a drug trafficker about to infuse a kilogram or two of cocaine into U.S. society? Is it immoral, using a chemical agent, to anesthetize someone about to undergo major surgery to spare him the trauma he otherwise would experience? If your answers are what I would hope them to be, would you find it morally objectionable to use these non-lethal means to defend your country against an enemy conducting lethal chemical warfare against us?

One can understand the reasons for treaties barring the use of chemical weapons by U.S. forces in fighting wars overseas in other peoples' countries, for once the chemical threshold is crossed who knows what the consequences may be. (This was one of the principle arguments used against the neutron bomb which whatever its discriminate properties was still a nuclear weapon.) However, these are wars someplace else, outside our own borders. On what grounds can someone object to the use of any discriminate weapon to defend a country when it is under attack from without and defending itself entirely within its own borders? If doing so appears to be in violation of an international treaty, then I would argue "What comes first, the observance of some admonitions on paper or the well being of the United States?" Sam Goldwyn once commented that "an oral agreement isn't worth the paper it's written on." I'd say the same thing about most arms control agreements. The pact coma about through oral; the document usually is worthless..

As for the impact of such a barrier on the drug war, I'd say it could be quite substantial, if done in concert with other measures to cut off air and sea traffic, but by no means would it come even close to eradicating the problem. All such measures would accomplish is to make it more far more difficult to get drugs into the country, but when the monetary stakes are so high a determined smuggler can succeed to a degree where the war still goes on. Add to this that many drugs can be synthesized clandestinely within our borders and the problem seems almost unsolvable, unless we begin taking punitive measures, such as execution, that some other countries do. But this is not a subject I feel competent to discuss coherently or even rationally. As one American, I have my own views on how severely we should deal with the drug problem — far more severely than we're now doing. In other words we should emulate Singapore. However, in contrast to my barrier idea, these are matters that practically everyone writes, talks and argues about, and my suggestions, being realistic about it, aren't worth the paper they're written on.

Plainly, I've been outraged and appalled over our nuclear policies for many years, and still am. I've gone out of my way here to attack the wisdom and even the morality of these policies, plus a number of individuals whom I've met who have played key roles in the formulation and implementation of these policies. But these are matters of opinion and judgment on matters so subjective that heaven only knows where the facts, let alone the truth, lie. They're also matters which even though they've involved enormous sums of monies and whipped up

debates that have shaken the nation and the world as well, have never been amenable to clear-cut resolution and never will.

I've given you my opinion and judgment on these matters and hope, naturally, that I've had some impact on your's — in my direction. However, in concluding this chapter I'd like to expose you to a moral matter which has no bearing on your security in the Nuclear Age or on your taxes used to obtain your security, but might have a bearing on your conscience, which it does on mine. It has to do with a life and death matter, not involving people, but animals who are subjected to experimentation by the U.S. military ostensibly for the purpose of improving the effectiveness of its weapons. Twenty or thirty years ago I regarded most of this experimentation to be an unhappy necessity; the nation's security counted infinitely more to me than the lives of animals. Today, I regard this as little more than a moral travesty

We had a family dog — a big one — over 100 pounds named Arp. Arp was no angel, in fact she was a bit of a neighborhood terror. Nevertheless I had a great affection for her. As aggravated as I've been with her sometimes I could never get myself to physically abuse her. She also had a great affection for me and every once in a while, when I was off guard, she would return my affection — but good! I've got more scars on my body thanks to her affection than you can count.

Now I've also got the greatest affection for my country, which these days get less and less of it but still gets it. Were the Defense Department to have come to me, (a very cold day in hell), and convince me beyond a shadow of a doubt that Arp and Arp alone could substantially help enhance my country's security by being submitted to the effects of some weapon under development, I would volunteer her. When they left with Arp, I would go into the bathroom and throw up, and would be sick at heart for the rest of my life. My family and probably most of my friends would detest me. I also would detest myself, but as you've noted I'm in the habit of doing that. I would feel a sense of shame that would forever haunt me, but in no way would I feel guilty over my action. I not only rank my country over God but even over Arp who had far more meaning to me than someone, something, whoever, whatever God is supposed to be.

Now the U.S. military who asked me to sacrifice Arp for its betterment might secretly detest me. What would the officer who came to see and plead with me over Arp's fate do if it turned out that only his dog qualified for the experiment? I'm sure he would go through the same agonies I would; but I'm not sure what his response would be. I'd guess there are plenty of military officers who wouldn't think twice about giving up their lives to defend their country who would reject any such plea if it was their dog, not someone else's.

As for the military detesting me for such a sacrifice, this would be nothing new. They've long detested me as I've gone out of my way to ridicule them for their stupidities and dishonesties, as I perceived them; and looking back on my not-so-sweet behavior, I don't blame them a bit. At the same time though I would like to point out that on many an occasion its generals have committed their share of detestable acts by sending young men into battle not only to fight but to offer them up as guinea pigs for the testing of the enemy's weapons. But that's what war is all about and if you think there's no sense in doing something like this, please give some thought to how much sense there is in the wars we like to fight these days.

Plainly, and I've given my reasons, I think these wars are a farce. I see far less justification for a general to send thousands of American boys into battle someplace overseas to be killed and maimed than sending Arp into a test chamber. I find such actions by our generals, who get their marching orders from their Commander-in-Chief, the President, indefensible and shameful. Yet, I've known any number of generals and many have been my good friends. Don't ask me to reconcile this moral hiatus in my thinking and acting; I can't. All I can say is that this crazy mishmash that constitutes our national security policy can produce contradictions such as this, where American youngsters are treated like dogs in using them for military combat purposes far less clear in value than using dogs in military experiments.

A few years ago, I was watching the news on TV and noticed that some animal rights activists group had testified before a congressional committee protesting military experiments involving the nuclear irradiation of animals. "What's going on?", I asked myself, "Is this idiocy still taking place?" Now this may seem strange to you that someone who spent the bulk of his career devising schemes for irradiating human beings and who was indirectly responsible, through the neutron bomb, for much of this animal experimentation, and thoroughly endorsed it, would react this way. But react I did, and to confirm what I had heard on the news I contacted the protesting group and queried them at length about the matter.

Sure enough, we were still taking little Rhesus monkeys, the cutest things you've ever seen, and every bit as affectionate as Arp, even more so if you judge affection by the way they treat their handlers, and dosing them up with neutrons and gamma rays, and then making measurements on the degradation of their performance in going through certain routines they've been trained to do. Some of them die, some don't, depending on the dose they receive; but all of them go through torture, like I went through at the hands of my mother.

When I heard this news item I had been long retired and completely out of touch with my professional past. At the time I was forced to retire, these monkey experiments and all other animal irradiations experimentation had stopped making any sense. We had been up to this business for over 30 years and had long reached the point of diminishing returns. However, once a government bureaucratic institution is established and continues to get backing by the sponsoring agency, it's next to impossible to turn it off. If you're short of funds, like the budget deficit is too far out of hand or there's a general tendency to cut the military because peace seems to be at hand, even when another war breaks out, you can do some trimming and a few people with civil service protection are shifted to another agency, But you don't eliminate something that's going on in a congressional district where jobs are at stake. This I understand, even if I don't accept it.

However, when the lives of innocent animals are at stake and they're to be tortured and murdered for a non-existent cause, this is where I draw the line. With respect to the irradiation experiments, considering that for 20 or 30 years the government has made it very clear it doesn't care for battlefield nuclear weapons in general, and specifically those that emphasize radiation, to go on subjecting these poor animals to torture and death to obtain information that not only was this of dubious technical value but worthless and meaningless in the real world, has to be morally obscene.

This was my attitude 10 or 15 years ago. But with all U.S. battlefield nuclear weapons, including neutron warheads, having been destroyed, how in heaven's name could we go on with such experiments designed to determine the effectiveness of weapons that aren't around? Even after the technical explanation I've given you on the neutron bomb, you may feel sickened over the prospects of these things being used; but they won't be around to be used by us very much longer. But knowing this, for the military to continue subjecting animals to irradiation testing left me feel sickened at the prospects for continuing to use them in meaningless experiments. But that's the way the system operates: if all the other navies in the world sunk to the bottom of the ocean, we'd still have ours.

Now I may fancy myself to be an expert on certain aspects of nuclear weapons, but in all honesty I can't claim such expertise for conventional weapons. On the other hand, I've subjected to a good deal of information on conventional weapons in the process of comparing them with nuclear ones, and can claim a fair level of understanding on how these things perform and what they're capable of doing and not doing. (In one case, during the 1970s, I did a study comparing neutron bombs with the most advanced conventional antitank weapons (called "precision-guided" weapons because of their alleged great accuracy, which didn't turn out to be the case for some of them in the Gulf war. As anyone in his right mind, except for antinuclear ideologues, knew would be the case, neutron bombs won hands down, by a huge margin. This was not what the Pentagon wanted to hear, even though it had ordered the production of neutron bombs. My study never saw the light of day.)

Having this background, I feel reasonably qualified to comment on animal experiments we perform to gain a better understanding of our conventional arsenal. Considering that this is the only arsenal we intend to employ should we get into another ground war someplace, it would seem essential, toward most effectively implementing our policy, to continue with such experiments. Nothing could be further from the truth. The more than \$100 million dollars a year we spend killing and mutilating animals not only is money down the drain, it's morally indefensible and repugnant.

Let's go back to Herman Goering's fantastic antiaircraft system. Now I don't have the details of all the testing that was done to prove out the system. However, had I been in charge of the development, to get the most exhaustive data possible, considering the stakes involved, saving German lives, I wouldn't have hesitated to strap down a monkey in the drone aircraft to be shot down, to learn a little something about the effects the defensive warheads might have on British bomber crews. (In fact, the Nazi mentality being what it was, I might have taken some Jewish kids from a concentration camp, on the grounds this was more realistic than using animals. You'll remember the experiments Nazi scientists performed on Jews to improve the effectiveness of their military operations.)

How much using animals might have helped the Germans better evaluate their antiaircraft system, I don't have the wildest idea; but it could be argued that something was to be gained. Toward shooting down an airplane, the main purpose is to disable it to a degree where it can't fly or function properly, if at all, but sometimes this can result from disabling crew members even though the plane is reasonably intact. (We've all seen World War I movies where machine gun bullets would pass through the fuselage and rip into the pilot, leaving a

flyable airplane inoperable. Whether the pilot or the airplane was disabled, the result was the same. Of course, were neutron warheads, which would make ideal antiaircraft weapons for enemy aircraft flying at high altitudes, to be used, the principle effect would be against the pilots — the radiation effects reaching out to far greater distances than the blast.)

Now, continuing in this macabre vein, let's assume that putting some little Jewish kids in the drones had yielded highly valuable information on the effectiveness of the German antiaircraft gun warheads, allowing Goering to be even smugger in his boasting than he was. How really valuable would this information have been? The answer is: Not at all. For what actually happened was that due to the stupidity of the German analysts (and Goering for believing them) and the ingenuity of the British bomber planners in devising countermeasures against the system, precious few of the thousands and thousands of the antiaircraft rounds ever came close enough to their targets to inflict any serious damage — to the bombers or their crews. All their experiments had been in vain.

Now let's move the clock ahead 50 years to the recent war in the Persian Gulf. A year or so after the war ended, the U.S. government finally got around to admitting it had lied on how effectively these razzle-dazzle hi-tech precision guided weapons had performed. In many cases, the warheads missed their marks by significant distances, sufficient to substantially degrade, or even negate, performance and in many other cases, due to Iraqi countermeasures, even when they hit what they were aimed at, they didn't hit what they thought they were hitting — it was a decoy, or something they thought was a target but wasn't. We may have won the war, but we didn't win it the way we had set out to win it with these newfangled weapons, not by a longshot.

What I'm getting at is that if we don't know very much about where the enemy targets are, what their numbers are, how protected they may be, what countermeasures they can take (which in many cases can be extremely effective in fooling these "smart" weapons), and how many of their soldiers we are rendering combat inoperative, how precisely must we understand the effectiveness of our weapons? Add to this that we really don't know how reliably many of our advanced weapons are going to work under realistic combat conditions, and that there are gross uncertainties in attempting to refine our understanding of weapon effectiveness through animal experimentation whose results must be translated to human beings, and the whole sorry show becomes hard to swallow. It's the logical equivalent of someone who's always 20 or 30 minutes late for an appointment buying a \$2000 Rolex to be sure he knows the time to a fraction of a second.

As you might expect, in the course of devising new weapon concepts that depend on nuclear radiation, I've come into contact with many of the scientists who performed these animal experiments. On occasion, I've worked quite closely with them and found them to be decent people dedicated to their work, and their country. So are, I'm sure, those who experiment with conventional weapon effects. Yet, when I think of the moral issues surrounding their experiments, I think back to what the Nazi scientists did to innocent human beings. I find it difficult to perceive any fundamental difference in what they did to humans and what we did to animals, except for the species involved.

Animals may or may not have their rights. If you think I go around crusading for animal rights, you're mistaken. I don't, because there's far more

than military experimentation entailed in this issue. I don't know enough about medical experimentation to come down on one side or another, except I happen to value most human lives much more than animal lives. If the medical scientific community reaches consensus that certain experiments with animals will benefit human beings, I have no quarrel with this. However, rights or no rights we have no right to go on murdering and torturing animals for no good reason at all. This rotten business should be terminated.

I haven't brought up military animal experimentation for the purpose of plucking at your heartstrings, if like me, you have a liking and compassion for animals. Nor have I brought it up to stir up moral indignation in you, which I think this pathetic situation calls for. Rather, I bring it up because it gets to the core of the basic irrationality and immorality of our national security policies. We have become so obsessed with our ideologically tainted ways of doing things, that we have lost sight of what our defense establishment is supposed to do, defend our country's vital interests in the most effective way possible. Which, when it comes to our lives and our survival, means defending ourselves in the most moral way. When our nation's existence is at stake, military effectiveness and its morality are one and the same.

You may choose to agree or disagree with my arguments for doing this or that, or cutting this or that, in figuring out how to best protect our country. I've given you my simple-minded opinions on what should be done, not because I regard myself as a simpleton. I don't. However, by no means do I consider myself sophisticated on these matters. They're not amenable to sophisticated solutions because gross ignorance and sophistication don't mix very well. All of us are grossly ignorant on most of these crucial military matters. That's always been the case. Those who claim to understand these matters are worse than ignorant. They're either self-deluded or downright crooks.

But aside from being self-deluded or crooked, there's the matter of knowing right from wrong. Animals may not but I would like to believe that most human beings do. One thing is for human beings to send other human beings into battle to be killed and maimed, and one can debate the morality of doing this until the cows come home. I think my country sending soldiers overseas to fight is wrong and immoral. You may not. And I won't say who's right or wrong, or moral or immoral. Regarding the deliberate killing and maiming of animals who think, love and misbehave on occasion as we humans do, on this matter, for the reasons I've given, I think this is simply and indisputably wrong.

6. Shame

As you've gathered, I've known and befriended a large number of military officers, many who rose to high rank in their service. All of them were human beings like you, and even me. Many of them not only have been highly successful in their careers (however one defines "successful" in a military career, it's beyond me; it's like a former Supreme Court Justice who when asked to define pornography said "I know it when I see it.") but have had their share of failures as well. When those officers I knew were on active duty and I had a good working relationship with them, for a common cause, I tended to ignore whatever personal deficiencies they might have had, as I saw them. What counted most with me was their personal devotion to their country and what they were accomplishing toward that end, as I saw it. I would guess that their feelings toward me were generally reciprocated. From these relationships some very rewarding things happened to me, as I saw them.

The relationship I treasured most was with Bennie Schriever, for all the reasons I've brought out here. We were nuclear warriors with a common cause, my cause enormously influenced by Bennie, and we both went down to defeat for common reasons. I shed tears when I came home after my final day at work, after some 40 years of toiling in the nuclear vineyards. I'll never forget seeing Bennie being chauffeured from his retirement ceremony (I had none; I didn't want one, I just wanted to go home), replete with a fly-by and all that military stuff, tears streaming down his cheeks, after 30 plus years in the uniform of his country, which would have been much longer had the government been more tolerant of his dissident ways and more appreciative of what he had done for his country.

Bennie was a soldier in the best sense of the word. When he received his commission in the Army Air Corps in the early 1930s and took the oath to defend the Constitution and whatever else you pledge to defend, I suspect he took it more seriously than many of his flying school classmates. For one simple reason: He was a naturalized citizen, from Germany, whose adopted country had given him a chance to rise from destitution. His father had died very early on and his mother, to support Bennie and his younger brother, had run a little snack shack in San Antonio TX, where Bennie arrived at age twelve. Thanks to his determined mother and by doing odd jobs, like caddying at a local golf course, he was able to attend college and go on to a military career.

A more dedicated American, and grateful to be an American, I've never known. Except for myself, I've never met a poorer soldier. Unless he felt they deserved it, I never saw him show any respect for his superiors, nor did I for that matter. As for properly saluting superiors, as much as I resented it even I did a better job than he. When he finally passes on, I suspect he'll be buried at Arlington cemetery with fullest military honors. What his epitaph will say, I'll never know because even though he's a dozen years older than myself, I don't expect to be around at the time. When I pass on, I'd like to be buried at a local veterans' cemetery, if they're willing to take me in, with an epitaph reading "He wanted to be here." As for a Star of David on my tombstone, I don't qualify.

His military career over, Bennie (unlike most retired generals who just plain retire) promptly, and when I say promptly I mean the next morning, plunged

into a civilian career. Being the most technologically oriented general the Air Force ever had and with a proven genius for planning and running huge projects based on exploiting advanced technology and innovative management practices, he had this brilliant idea for revolutionizing urban planning and renewal, including the notion of building a new city from scratch which could be run with the efficiency he showed at running missile projects. He had no desire to make big bucks, he just wanted to go on contributing to his country.

Naturally and predictably, he flopped and had to shut down his outfit after a few years, as the facts of life of big city politics reared their ugly heads. A great pity, for had politicians listened to his ideas, today, some two decades later, our urban problems could be far more manageable and some of them might not even exist. As the saying goes in my area "Fewer and fewer people retire in L.A. if they can retire out of L.A." Which perhaps I'll be leaving one of these days after more than 70 years of seeing heaven go to hell, in no small way due to drugs.

Although on retirement Bennie had dedicated himself to a non-military career, he had no intention of giving up on fighting for his old military causes. He requested of me that I write a book for him, which would express our common views on what had to be done about our defense, particularly the tactical nuclear part of the equation. I wrote the book. You can guess what it emphasized most strongly. However, for his personal and political reasons, he backed away and it never saw the light of day. I was bothered no end by this, for I thought, with his reputation, the book could have an impact. I was dead wrong, there was no way (as you well know, having read my accounting of how the U.S. has handled nuclear weapon policy), but I still was bothered that he chose not to speak out publicly. However, giving him some credit, he did join up with a group of retired generals who put out a fine report warning about the growing strategic imbalance between the U.S. and the USSR, which was fine with the Pentagon and defense contractors. But he said absolutely nothing about tactical nuclear weapons, which more than anything else had forged the bond between us.

When his urban planning enterprise failed, Bennie found himself wondering what to do with himself. Being unwilling to be inactive, he began doing what so many of retired generals and admirals do; joining high level government committees whose policies were sharply in contrast to those he had held in uniform, consulting with aerospace companies, joining boards of directors, investing in new hi-tech companies he thought showed promise, etc. I would have preferred that he continued to fight more for our nuclear causes, but for obvious political reasons he chose not to. Had he done so, some of the companies he consulted with and on whose boards he sat would have kicked him out, despite all the good he had done for them when he was in uniform. Nevertheless, as I thought I was honor-bound to do, I decided he should have continued to fight for the cause. I was dead wrong. He wasn't necessarily dead right, but he was acting like almost all decent, dedicated patriotic Americans would do if they had half the talents, make it a tenth, Bennie had. As to what his personal financial problems may have been, I couldn't have cared less. That was my attitude. I was wrong — dead wrong.

In my own stupid way, when I would get together with Bennie and discuss national security issues, I would harp on tactical nuclear matters and later on

nuclear SDI defenses. He would pull away from them, issues on which we had so long and so devotedly collaborated, at his expense and my expense. I would get angry, really angry, with him. After the second or third martini I would launch into him and intimate, sometimes even state flat-out, that he was going back on what he/we had stood for over all these years. It never occurred to me that he was trying to help out, as best he could, in the real world of weapon development, which I thought was fraudulent, while I, Sam Quixote, with no Sancho Panza, continued to fight for a cause that not only was lost but gone.

All I knew was that we were heading down the primrose path to disaster and that Bennie was going along with the game. Our friendship began going down hill, but there was no way I could control my consternation over his behavior, let alone our government's. We still kept up our relationship but it became less and less meaningful. We would get together and mainly through his efforts we would talk about subjects we never spoke about before — like his golf game, our kids, his grandkids, our mutual friends we hadn't seen in years, and all that. But inevitably, after a third or fourth drink one or another of us would get back to matters that brought us together in the first place, and I would launch into him, sometimes bitterly. Sometimes he would counter by saying he was too busy to give speeches or write articles on matters of our common nuclear agreement. So why didn't I put my pen and paper where my big mouth was and write some articles and speeches for him to sign off on. I did this, time and time again, but nothing happened; nothing came out. So I stopped writing and got angrier and angrier, but still too stupid to understand what his particular set of problems was all about; a set of problems I won't go into but one that most of us, including me, face up to at one point or another in our lives. Our friendship deteriorated even further. So did my sense of decency, for I was continuing to act shamefully, having forced an issue to the surface that should have remained buried, especially when an old and warm relationship was at stake.

Now I'm not trying to let Bennie off the hook here, while castigating myself. As I look back, the proper thing for him to have done was to level with me and say something like "What the hell do you want me to do, Sam? Do you want me to get my throat cut like they're doing to you and become a martyr in your eyes and a few others who think I ought to speak out? Do you really think that's going to do any good for the country when you know damned well the country isn't prepared to listen to what we have to say? What I'm trying to do is to help in areas where the military wants to be helped. That's better than doing nothing but complaining. I think I can do more good by staying in the system than fighting it. Just name one person in my position who's going around saying the things you want me to say. So why don't you lay off?"

In theory, that could have done the job and patched up things between us, which were really getting bitter, mainly due to me. The facts were, I was incapable of understanding such candor. To me, the world, the threats we faced and the way we were facing up to the threats, was so cut-and-dried (and I could prove it; I really could, so simple were the issues — at least to me) that I saw only one way to save ourselves: placing prime reliance on nuclear weapons. So starchy were my views that it was impossible for me to discuss major national security issues without boiling over at someone who was working with the other side, which Bennie was doing while personally, when alone with me, agreeing with my views which, after all, were the views he had imbued in me 30 or more years ago, views that he kept to the point where his fabulous

military career was terminated. I'm sure Bennie understood this, he knew me pretty well, better than I knew myself, and decided against being open with me.

The trouble was that if I was incapable of stopping my raving about the iniquities of the system, so was he. I would listen to him complain against those bastards in Washington who were taking us to the cleaners, and time and time again I would light into him and ask him why, after all those years of retirement, he still hadn't spoken out. Upon which he would ask me the standard favor: "Sam, I don't have the time to do it myself; but why don't you write an article for me and goddamnit I'll get it out!" Upon which I would sit down immediately, write the article and send it off to him. Naturally, not one of them ever saw the light of day. I really felt misused and my bitterness increased, against him and around him. It looked like a 40 year friendship was coming to an end.

Finally, I decided to confide in Vince Ford (Bennie's closest friend and confidant and my dear friend), who in no small way had steered Bennie onward and upward through the Washington jungle. Vince had a very simple suggestion for me: "cut it out or your going to lose a friend who cares a great deal for you and has done a great deal for you. If you want to argue with him, go ahead and argue, but don't make it personal and don't take him seriously. You've been arguing with him ever since you met him. I've watched the two of you go at it and it was always for the good. Bennie really appreciated it because you were testing him instead of toadying up to him like all those sycophants who hang around him. So cut it out, Sam." I cut it out.

The next time I got together with Bennie I apologized for my behavior and told him I really felt ashamed of myself. He brushed it off, telling me there was no need for any apologies. Our friendship began going back to where it was, but not entirely. It's sort of like the good old days when arguments resolved themselves by duels; after which, if both survived, the antagonists might fall back into each other's arms but in the mean time had cut each other up enough where scars remained for a long time.

As of today, with a world drastically different from the one I thought I understood so well when I lit into Bennie, I don't know whether to laugh or cry when I think of the spats we had. The nuclear strategies we fought so hard for have no capabilities to back them up. The conventional strategies I fought so hard against and still do, have never been more dominant. Bennie goes on with his consulting and board memberships and I continue to write as controversially as I can whenever I can. I also manage to keep my mouth shut around him when there's any possibility of reopening old wounds. Which aggravates the hell out of him. Good soldiers like good opponents and I refused to oppose him. But what the hell; do you really think I've changed, even if the best I can do is tilt at windmills? Of course not. That would be shameful.

7. Overview and Postscript: The Profits of Fear (Charles Platt)

7.1 Prologue: Nuclear News on Route 66

I'm cruising into the small town of Williams, Arizona, heading for the laundromat, when my pickup truck coughs and dies, leaving me stranded at the side of old Route 66. As I pause to consider my options, my cell phone rings. The inventor of the neutron bomb is on the line.

"Charles, this is Sam," he says, sounding elderly and erudite. "Did you hear about Edward?"

In his inimitable fashion, Sam Cohen, who really did invent the neutron bomb, is notifying me that Edward Teller has died after a long series of health problems. Sam was on first-name terms with Edward for about fifty years, since the days when they worked on nuclear weapons at Los Alamos during World War II.

It occurs to me that something must be seriously wrong with the world when a former guru of American nuclear policy seems to have so much time on his hands, he can find nothing better to do than chat with a semi-retired, little-known science journalist sitting in the middle of nowhere in a dead pickup truck carrying an unprocessed cargo of dirty laundry.

Once upon a time Sam Cohen conferred with cabinet members, briefed congressional committees, and argued international strategy with U. S. presidents. He participated in the most influential think-tank that ever existed, and his bid to reform modern warfare earned him a Medal of Peace from Pope Paul VI. During a relentless campaign to deploy downsized nuclear weapons of vastly reduced destructive power, he received an audience from Dwight D. Eisenhower, who was polite but uninterested, preferring big bombs to small ones. He managed to get a memo through to John F. Kennedy, whose position turned out to be similar to that of Eisenhower. He spent some time with Richard M. Nixon, whose position turned out to be similar to that of Kennedy. Finally he scored a hit with Ronald Reagan, who initiated a project along the lines that Cohen had in mind, until George Bush, Senior, reversed the policy at a total cost approaching \$1 billion.

The story of how this happened is not just of historical interest. It exposes pathologies in the Federal Government that devour our resources and jeopardize our security just as much now as they did then. For those who wonder how neoconservative think tanks managed to incite empire-building conceits that fomented a renewed war in Iraq, Cohen's experiences fifty years ago turn out to be unexpectedly relevant.

7.2 The Drama

America's first and most notorious think-tank was RAND, an independent entity that became hugely influential on postwar military policy. Named by concatenating the words "research and development," RAND attracted world-class scientists such as John von Neumann, Herman Kahn, Edward Teller—and Sam Cohen. While Cohen's academic credentials were less impressive than those of most of his colleagues, he made up for them with qualities that many

RANDites lacked: Commonsense coupled with undiplomatic, in-your-face honesty, regardless of any consequences to his own career.

In Cohen's words, RAND's objective was "to challenge the stultified mentality of the military brass who already had begun planning for the next war on the basis of the last one, even though we had entered the Nuclear Age. Their experience in nuclear war was zero. For that matter, RAND's experience also bordered on zero, but their intellectual arrogance convinced them this was no major handicap."

(Quotes in this text are taken from personal conversations with Sam Cohen and from his autobiography.)

While RAND's own official history claims that its studies were distinguished by "scrupulous nonpartisanship with rigorous, fact-based analysis," Cohen's assessment of his former colleagues is a bit less flattering. He remembers them as "people who thought they had a God-given ability to know the unknowable. At best, their behavior was hallucinatory. At worst, they were just crooks and liars."

Formulating scenarios for deploying and using nuclear weapons in opposition to the Soviet Union was the highest-stakes game in military history. Nuclear analysts who advised everyone up the chain of command to the President of the United States were conscious of controlling immense power; and inevitably, it colored their judgment. The title of Herman Kahn's notorious book, *Thinking the Unthinkable*, accurately conveyed the mood of horrified fascination that infected some people who immersed themselves in the macabre study of megatons and megadeaths.

Kahn in particular became intoxicated by his role as a doomsayer. He actually seemed to enjoy delivering bad news, and with good reason: It made him famous. One of his fundamental messages was that national survival depended on deterring aggression from potential enemies, and a deterrent was only effective if you were willing to use it. Therefore, instead of being afraid to think about nuclear war, we had to show the world that we were perfectly willing to deal with the consequences, even if they entailed a dark age lasting ten thousand years. We had to "stop worrying and love the bomb," as Stanley Kubrick put it in his subtitle to the nuclear black comedy *Dr. Strangelove*—and some grim one-liners from *Thinking the Unthinkable* actually were used as dialogue in the movie.

The problem was that Kahn's intoxication with his subject matter and his doomsayer status tempted him to cut corners on his science. One of his most influential papers claimed that the Russians could and perhaps would launch a pre-emptive strike against American air bases, wiping out the nation's ability to defend itself, and forcing it to capitulate. Sam Cohen had been a friend of Kahn's during their college days—in fact, he had brought Kahn into RAND—but friendship couldn't blind him to the defects he saw in the study. He recalls finding calculations of bombing accuracy based on guesswork, assessments of Soviet military strength that seemed grossly exaggerated, and estimates of bomb damage that Kahn had simply invented. "I suspected that Herman had put out his study more for effect and notoriety (which he sure got) than for substance," Cohen wrote later. "And I wasn't the only one on to Herman. There were plenty, in and out of RAND, who knew what he had done was basically fraudulent. The trouble was that he already had made his mark and a huge

impact on Washington officialdom, which in those days liked hearing horror stories like this.”

To anyone who wondered how horror stories about an elevated communist threat could possibly be popular, the answer was that they served the needs of hundreds of thousands of people who worked for the Federal Government or enjoyed its largesse. Bad news justified bigger military budgets, which enriched defense contractors, boosted employment in key congressional districts, and increased the influence of cold warriors in the Pentagon. Bad news united the nation and weakened opposition to legislation which rode in on the coat tails of anticommunist hysteria. Most of all, bad news enhanced nuclear drama, which inflated the importance of government in general and the Executive Branch in particular.

Kahn was by no means the only one with a flare for dramatic scare tactics. When Nikita Khrushchev hammered his desk with his shoe in a temper tantrum at the United Nations General Assembly, or John F. Kennedy suggested that he might have to bomb Moscow if the Soviet Union didn't pull its missiles out of Cuba, anyone could see that nuclear drama had infected players up to the highest levels of government. Their performances became a prime-time phenomenon reaching a worldwide audience that numbered hundreds of millions. Hitler's rallies and Roosevelt's fireside chats were trivial by comparison. The Cold War was the ultimate endorphin rush for any public figure who enjoyed making dramatic pronouncements that could mold history, while legions of advisors experienced a contact high.

Imagine for a moment that at some time during the 1960s, the communist threat had suddenly disappeared. Politicians, policy wonks, and pundits would have found themselves instantaneously demoted from star status. They would have been forced to fall back on humdrum traditional issues in government such as placating special-interest groups or juggling the budget. For an ambitious statesman, a four-star general, a RAND doomsayer, or a hungry defense contractor, the disappearance of communism would have precipitated a humiliating career catastrophe.

Of course the rich rewards from nuclear drama lasted only so long as it stopped short of nuclear war. Therefore, a major task for RANDites was to develop strategies to stabilize the nuclear deterrent and discourage anyone from doing anything stupid, such as launching a pre-emptive strike. Cohen argued that this would be such a singular, unprecedented act, analysts who imagined they could predict the circumstances and evaluate the outcome would be indulging in self-deception. Still, RAND's mission was to give answers based on “rigorous, fact-based analysis,” and a new analytical tool named game theory was the method of choice. Game theory began with the logical proposition that in a strategic two-player game, either player may try to obtain an advantage by bluffing. If the stakes are low, perhaps you can take a chance on trusting your opponent when he makes a seemingly fair and decent offer; but when the penalty for being deceived can be nuclear annihilation, taking a chance is out of the question. You work on the principle that the person you are dealing with may be utterly ruthless, unethical, and untrustworthy, no matter how peaceful his intentions may seem. You also have to assume that he may be smart enough to use game theory just like you; and therefore, he will assume that *you* are ruthless, unethical, and untrustworthy, no matter how peaceful *your* intentions may seem. In this way a supposedly rational system of assessment

leads to a highly emotional outcome in which trust becomes impossible and strategy is based entirely on fear. This is precisely what happened during the decades of the Cold War.

Some key players during the 1950s really were ruthless and unethical—or at least, they talked as if they were. General Curtis LeMay had organized the firebombing of Tokyo during World War II, which took more lives than the atomic bombs at Hiroshima and Nagasaki. LeMay now ran Strategic Air Command, and when Cohen enjoyed a frank conversation with him, the main thing the general really wanted was “a bomb that will wipe out all of Russia. That’s my number one priority. When you kill enough of them, they’ll stop fighting.”

Of course extremists such as LeMay were outnumbered by moderates, but according to game theory, you couldn’t count on that. You had to assume that the Soviet Union might have LeMays of its own, and they might actually have enough clout to persuade their bosses to build superbombs.

So, when the United States had to decide whether to spend vast sums on a project to develop the hydrogen bomb, a characteristically rigorous, fact-based study from RAND concluded that it would be necessary, because no one could trust the Soviet Union to refrain from starting a similar project of its own. “Not that they would be masters of the world if they built such bombs and we didn’t,” says Cohen. “But we feared they would. The fear may have been a myth but under such circumstances myths become all-important facts.”

The fear-driven mindset became so deeply embedded in American foreign policy, it precipitated non-nuclear misadventures such as the war in Vietnam—which was based on the fear that if Vietnam fell to communists, neighboring nations would follow. This “domino theory” turned out to be utterly false, but a similar set of fears precipitated subsequent adventures in the Middle East. As Cohen puts it, “Our policies, which since World War II have gotten us into war after war—none of them successful or in our true interests—have remained the same.”

Today, RAND has been eclipsed by dozens of newer policy institutes in Washington. Neoconservative organizations alone include The American Enterprise Institute, The Bradley Foundation, The John M. Olin Foundation, The Heritage Foundation, The Smith Richardson Foundation, The Jewish Institute for National Security Affairs, The Center for Security Policy, The Hudson Institute, The Institute for Advanced Strategic and Political Studies, The Ethics and Public Policy Center, and The Foundation for the Defense of Democracies.

The Project for the New American Century appears to have been especially influential. In 2000 it published a position paper endorsed by Dick Cheney, just in time to influence presidential candidate George W. Bush. Titled “Rebuilding America’s Defenses” the paper argued that the United States under Clinton had behaved as irresponsibly as Britain during the 1930s, when the British chose to kick back in a cheerful state of peacetime complacency instead of building up an arsenal to counter the emerging threat of Nazi Germany. “Rebuilding America’s Defenses” urged the United States to use its unique wealth and power to intimidate potential foreign adversaries before they could grow big enough to intimidate us.

The terrorist attack on the World Trade Center almost seemed to validate this call to action—except that the attack was launched by a handful of

religious nuts armed with box cutters. A bigger arsenal to fight foreign wars could never prevent guerrilla actions of this type. Nevertheless the fate of the Trade Center somehow helped to justify deployment of stealth bombers, cruise missiles, tanks armored with depleted uranium, and many more state-of-the-art munitions including massive (conventional) bombs which George W. Bush described as inspiring “shock and awe.” None of this could compare with the glory days of megatons and megadeaths, but the prospect of mobilizing a huge high-tech force (with a little old-fashioned torture on the side) still created perhaps a frisson of horrified fascination. More to the point it delivered an overdue dose of drama for those who still dreamed of playing an historically significant role on the global stage. When you factored in the fringe benefits, such as unifying an electorate that had been bitterly divided over an allegedly illegitimate presidential election, “Rebuilding America’s Defenses” must have seemed irresistible.

RANDites were the primary architects of the Cold War, but today’s policy advisors may be more potentially dangerous, not just because there are more of them but because their recommendations are more likely to be implemented. When some RAND studies advocated a pre-emptive nuclear strike against the Soviet Union back in the late 1940s, no one in government was willing to embark on such an adventure, partly because the consequences were so unpredictable and potentially horrific. More than fifty years later, when neoconservatives advocated a non-nuclear pre-emptive strike against Iraq, their suggestion quickly became a reality, because—initially, at least—the risk seemed so trivial.

7.3 *The Most Moral weapon*

Sam Cohen might have remained relatively unknown, troubled by ethical lapses in government and the military but unable to do anything about them, if he had not visited Seoul in 1951, during the Korean war. In the aftermath of bombing sorties he witnessed scenes of intolerable devastation. Civilians wandered like zombies through the ruins of a city in which all services had ceased. Children were drinking water from gutters that were being used as sewers. “I’d seen countless pictures of Hiroshima by then,” Cohen recalls, “and what I saw in Seoul was precious little different. . . . The question I asked of myself was something like: If we’re going to go on fighting these damned fool wars in the future, shelling and bombing cities to smithereens and wrecking the lives of their surviving inhabitants, might there be some kind of nuclear weapon that could avoid all this?”

Here was a singularly odd idea: To re-engineer the most inhumane and destructive weapon of all time, so that it would *reduce* human suffering. Cohen’s unique achievement was to prove that this could in fact be done.

His first requirement was that wars should be fought as they had been historically, confining their damage to military combatants while towns and cities remained undamaged and their civilian inhabitants remained unscathed. This concept seemed quaint in a new era where everyone and everything was at risk of being vaporized in a nuclear exchange, but Cohen saw no reason why nukes had to be massively destructive. Technology existed to make them so small, they could cause less damage than even some conventional weapons.

Ideally he wanted to reduce blast damage to zero, to eliminate the wholesale demolition of civilian housing, services, and amenities that he had witnessed in

Seoul. He saw a way to achieve this if a fusion reaction released almost all of its energy as radiation. Moreover, if this radiation consisted of neutrons, which carry no charge, it would not poison the environment with residual radioactivity.

The bomb would still kill people—but this was the purpose of all weapons. *If* wars were liable to recur (which Cohen thought was probable), soldiers were going to use weapons of some kind against each other, and everyone would benefit if the weapons minimized pain and suffering while ending the conflict as rapidly as possible.

Cohen came up with a design for a warhead about one-tenth as powerful as the atomic bombs dropped on Japan. If it was detonated at 3,000 feet above ground level, its blast effects would be negligible while its neutron radiation would be powerful enough to cause death within a circle about one mile in diameter. This was the battlefield weapon that came to be known as the neutron bomb.

Such a weapon obviously would be more civilized than large-scale hydrogen bombs, and would also be more humane than conventional bombs, because it would create an all-or-nothing, live-or-die scenario in which no one would be wounded. A stream of neutrons cannot maim people. It will not burn their flesh, spill their blood, or break their bones. Those who receive a non-lethal dose will recover after a period of intense nausea and diarrhea, and Cohen estimated that their risk of subsequent cancer would be no greater than the risk we experience as a result of exposure to second-hand cigarette smoke. As for the rest, death would come relatively quickly, primarily from shock to the central nervous system. As he put it in his typically candid style, “I doubt whether the agony an irradiated soldier goes through in the process of dying is any worse than that produced by having your body charred to a crisp by napalm, your guts being ripped apart by shrapnel, your lungs blown in by concussion weapons, and all those other sweet things that happen when conventional weapons (which are preferred and anointed by our official policy) are used.”

After assessing every aspect and implication of his concept, he reached his modest conclusion: “The neutron bomb has to be the most moral weapon ever invented.”

7.4 A Nuke by Any Other Name

Since the United States refused to abandon South Korea, and a handful of neutron bombs might force the North Koreans to surrender with the same rapidity as the Japanese after Hiroshima and Nagasaki, Cohen thought his concept should receive an enthusiastic welcome, especially considering that it would create virtually no radioactivity or collateral damage. He began by making a presentation to some former colleagues of Robert Oppenheimer at CalTech.

They quickly enlightened him. The neutron bomb suffered from a terrible stigma: It was nuclear. Ever since the United States had bombed Japan, American strategists believed that using any nuclear device against any Asian people “would bring down on us the wrath of the civilized world,” as Cohen put it. To the guys at CalTech, this was “an article of faith. It also became a basic tenet of U. S. policy, and still is.”

The theory was not supported by evidence, but seemed so entrenched, Cohen was forced to conclude that if battlefield nuclear weapons were going to be used anywhere, “it would have to be somewhere other than Asia and against a different kind of people; namely, in Europe against Caucasians.”

With this in mind he approached some Pentagon planners who were developing scenarios for defending Europe against a hypothetical Soviet invasion. Here he ran into a different kind of opposition, because military people did not remotely share his interest in minimizing damage. On the contrary, they wanted to do as much damage as possible. Typically they would send reconnaissance aircraft to take pictures after an attack, to evaluate their success at blowing up buildings, setting fire to factories, knocking down bridges, and sinking ships. If they used neutron bombs that caused no damage at all, how would they know whether their strikes had been effective? Neutron bombs wouldn’t even cause bloodshed in the usual sense, because enemy soldiers would keel over and die wherever they happened to be—even inside armored vehicles and shelters. An accurate body count would be impossible.

As for a weapon that was “more ethical,” this seemed of little interest to anyone. As for it being smaller and cheaper than big bombs, this was actually a disadvantage. Vast appropriations had been allocated for intercontinental ballistic missiles, giant bombers, and submarines capable of delivering the kind of megabombs that people such as Curtis LeMay insisted were necessary. A bargain-basement alternative that didn’t require expensive delivery systems could bankrupt defense contractors and cause massive unemployment.

Meanwhile, to the peace movement, the neutron bomb was unacceptable because—well, it was still a bomb. Cohen was like a parent of two belligerent ten-year-olds who sees them brandishing guns at each other, takes the guns away, and gives the kids cans of pepper spray instead. “There,” says the parent, “now you can’t kill each other, or shoot the cat, or blow holes in the living room.” Clearly this is an improvement, but, the kids are still fighting. As a realist, Cohen might argue that kids always pick fights with each other, and your best hope is to minimize their risk of injury. To a peace activist, fighting itself is inherently wrong, and anyone who supplies any kind of weapon is an enabler, perpetuating the sickness instead of eradicating it.

From an activist’s point of view the neutron bomb suffered an additional, unique defect. It would kill people without damaging real estate, implying (incorrectly) that Cohen regarded real estate as being more important than people. In an era where the counter-culture had turned “capitalism” into a tainted word, the neutron bomb became stigmatized as “the ultimate capitalist weapon,” as if a bomb that only killed people was somehow worse than conventional weapons that inflicted terrible wounds *and* created environmental devastation *and* killed people.

Overall, the neutron bomb displeased almost everyone, and its chances for development and deployment seemed essentially zero. Still, Cohen was relentless. He continued promoting the concept to anyone who would listen, and by chance his proselytizing reached the ears of a former nuclear weapon planner named Jack Morse. The situation now changed radically, because Morse had the political savvy and connections that Cohen lacked.

7.5 What's a Neutron?

Morse began promoting Cohen around Washington, and Cohen found himself making presentations to politicians instead of the defense contractors, academics, RANDites, and Pentagonians he had dealt with before. His education in the processes of nuclear policy entered an entirely new phase.

Senator Clinton Anderson, Chairman of the Joint Committee on Atomic Energy (JCAE), denounced the neutron bomb primarily because it was being studied for possible development at the Livermore laboratory in Northern California, whereas Anderson represented the state of New Mexico, which was the home of Los Alamos National Laboratory. Any new project that would benefit Livermore at the possible expense of Los Alamos was a nonstarter so far as he was concerned. Its supposed benefits to the United States or humanity in general were of secondary importance.

Senator Thomas Dodd liked the neutron bomb mainly because he hated communism, and a weapon that would kill communists while leaving their territory in pristine condition for American occupation seemed a great idea. He presented a memo endorsing the bomb to John F. Kennedy, but Kennedy wasn't interested. When Dodd persisted, the Kennedy administration became so impatient with him that Dodd feared they would deprive him of support in his upcoming campaign for re-election. At this point he dropped the whole issue. He reminded Cohen that although the fight against communism was important, "the first duty of a politician is to be elected."

Senator John , then chairman of the Senate Armed Services Committee, paid extravagant lip service to the neutron bomb yet seemed disinclined to back his words with actions. In Cohen's estimation, "Had the bomb been a big ticket multibillion dollar item that could have been produced in Mississippi, his interest in it might have been different. But nuclear warheads, compared with the weapon systems that deliver them, are dirt cheap."

Representative Melvin Price was the most senior member of the JCAE, and had played a major role in formulating nuclear policy for more than a decade. Supposedly he was an expert on all things nuclear, but his response may have bothered Cohen more than any other. At the end of a briefing, Price asked only one question: "What's a neutron?"

Perhaps Cohen should have known what to expect, yet still he was appalled. Elected representatives on committees that established policy at the highest level were motivated by base self-interest, expediency, and petty rivalries. They were not only ignorant, but uninterested in educating themselves. Given a choice between saving public money and spending it, they preferred to spend it. Allowed the option of destroying a city or leaving it unscathed, they opted to destroy it. Forced to choose between maximizing human suffering on innocent civilians or minimizing it, they chose to maximize it.

Journalists were not much better. They could have learned the ethical basis for the neutron bomb easily enough if they cared to do so, but, they didn't care. They took the lazy way out, quoting cheap shots from peace activists' press releases, which never failed to tag the bomb as the "ultimate capitalist weapon." Cohen took grim solace when Leonid Brezhnev denounced him publicly as an "international war criminal," but the vilification he received in his own country was hard to endure.

Confronted with bad press, venal politicians, and world leaders who still seemed hooked on the drama of weapons that would cause as much destruction

as possible, Cohen concluded that neutron bombs would be built only if the United States got itself into a conventional war that imposed an intolerable financial burden while creating unacceptable casualties among American troops. As the years passed, the Vietnam War certainly began to fit this description. “We had close to a half million American casualties in Vietnam,” Cohen recalls, “and by this time the Livermore laboratory had put in a proposal to Washington stating that they could manufacture a couple hundred neutron bombs. Of course, no one can predict the number of bombs that would produce any specific result, but I believe that considerably less than 200 neutron bombs could have ended that war.”

Since an outright retreat from Vietnam seemed unthinkable at this time, the situation invited a quick application of overwhelmingly superior military technology—which could now be achieved without targeting civilians or destroying the infrastructure that sustained them. Once again, however, Cohen found himself thwarted by theories and prejudices that made this unacceptable. The neutron bomb was still nuclear, the Vietnamese were Asian, yet even this wasn’t the biggest issue. According to conventional wisdom, any small nuclear weapon was dangerous because the nation that used it would encourage other nations to use theirs, and a back-yard nuclear squabble would escalate to a full-scale nuclear war.

This was like the theory that anyone who used marijuana would wind up using heroin. No evidence existed to support it. No national leader had ever threatened to respond with a big nuke if someone else launched a small one. Still, everyone was afraid that it could happen, and Cohen couldn’t prove that it wouldn’t.

In a presentation that he made to the State Department, Cohen tried to get his audience to reconsider their prejudice against anything nuclear. He asked everyone to consider a hypothetical bomb that would be “semi-nuclear,” using a very small charge to accelerate a cluster of projectiles. The nuclear detonation would harm no one directly. It would be like gunpowder moving a bullet. Would this be acceptable?

As Cohen remembers it, the State Department officials were unanimous in their response. The United States should never be the first to use any nuclear-based device. Since Cohen’s hypothetical weapon was nuclear-based, it could not be used.

He countered by proposing another idea. Physicist Freeman Dyson had suggested a spaceship powered by small nuclear bombs. The spaceship would be blasted into orbit by a couple of explosions from a location such as a Pacific atoll, where nuclear weapons had been tested many times. Once the spaceship was in orbit, it could drop conventional bombs on North Vietnam. Would *that* be acceptable?

No, it would not. Any kind of nuclear explosion was taboo if it was connected directly or indirectly with the delivery of a weapon.

All right, Cohen said, what if the spaceship was powered by a nuclear reactor? Better still, what if the United States sent one of its nuclear-powered aircraft carriers to launch conventional bombing missions from the North China Sea?

Even a nuclear-powered aircraft carrier was too much for some State-Department officials to accept—although subsequently, such aircraft carriers were deployed routinely for this purpose. By then, however, Cohen had given

up trying to deal with the State Department. He said, “I could rebut people like these logically, and show how prejudiced they were, but their antinuclear phobia was of such enormous magnitude, they became totally irrational. It affected their science.”

He continued to promote his beliefs within RAND, yet even in this academic enclave, where horrified fascination had been a routine corollary of thinking the unthinkable, the climate had changed. “Everyone at RAND was now totally against battlefield nuclear weapons,” Cohen recalls. “In fact most of them were now against all nuclear weapons. They subscribed to the same mythology as everyone else, that if you get into a conflict where one nuclear device is detonated, there will be an escalation process that is unstoppable. There was nothing in history to justify this. They just concocted the idea as being an inevitability. They knew it as a fact of deep religiosity.”

Cohen had been an irritant for many years, but now his relentless campaigning in favor of battlefield nukes caused him to be perceived as dangerous. He was fired from RAND in 1969. He continued working in various consultancy roles for the government and for defense contractors, but life was never quite the same again.

7.6 Warfare as a Biological Function

Long after the Vietnam War reached its miserable end, Sam Cohen’s cheerleading for the neutron bomb achieved unexpected results. More than twenty years had elapsed since his epiphany in Korea, and the best opportunities for deployment had passed; but he became a policy advisor for incoming president Ronald Reagan, who liked his ideas. Two friendly senators then led a successful effort that overcame resistance within the Pentagon.

Alas, the way in which the neutron bombs were built totally perverted Cohen’s original plan for them.

Two sizes were devised. Both were configured to explode near ground level, so that instead of minimizing blast damage they would maximize it to satisfy the enduring military need to blow things up. The larger of the two designs was actually so big, Cohen calculated that it would inflict devastation on the same scale as the first atomic bomb at Hiroshima. Worse still, since the weapons honored the “no Asian targets” rule and were intended to defend American allies in Europe, their blast damage would destroy the friendly territory that they were supposed to protect.

Cohen was not particularly surprised when Europeans refused to allow the warheads on their soil. The neutron bombs remained in the United States, where they served no function because they could not be deployed rapidly if a Soviet invasion took place.

This, then, was the final insult. After the neutron bomb had been maligned and misunderstood, it was misapplied, and became just another profligate military boondoggle. Cohen made no secret of his dissatisfaction. His rants were not calculated to make friends or influence people, and he was forced into an early retirement in 1985.

Stocks of American neutron bombs were retained for a couple more years, but George Bush Senior finally made a policy decision to eliminate *all* battlefield nuclear weapons, and thus “the most moral weapon ever invented” was scrapped without benefiting anyone other than the defense contractors who built it.

Cohen was left wondering about the real motives of people who mold military policy. He ran across a book from the Pentagon library titled *The Sexual Cycle of Human Warfare* by a former British colonel named Normal Walter. Although Walter was not trained as a scientist, his view of warfare was basically sociobiological. He argued that in our evolutionary past, inter-tribal conflicts enabled elders to discipline younger, competitive males and reduce their numbers. According to this theory, war became institutionalized by older males who wanted to maximize the number of single females by culling the number of younger males.

The hypothesis was unprovable, but Cohen certainly saw that warfare satisfied an emotional need. In his words, “We just plain like to fight wars. We adore the military, and over the decades countless millions of young Americans have entered the services to fight. They were more than willing, and their parents accepted it. It’s in the genes. We’re being driven by forces that we can’t afford to understand.”

He now describes himself as “an extreme military isolationist. This may sound extreme for a Jew who really hated the Nazis, but the way I feel today, if I had been FDR when World War II broke out, I wouldn’t have gotten us into it. I would have shied away and waited for things to resolve themselves.”

Since no one is likely to re-engineer human nature, Cohen’s ultimate conclusion is that government policy should impose financial limits on our human weaknesses. The defense budget should be cut to the point where we would be unable to afford any battles overseas. “Otherwise,” says Cohen, “we’re going to go on poking our nose in all over the world, supposedly to preserve freedom. And each time we will kill countless innocents and make lives miserable for those who survive.”

He would apply a greatly reduced military budget primarily to defend the nation at home, using measures such as a realistic anti-ballistic missile (ABM) defense. By “realistic” Cohen means small nuclear warheads that would explode over an American city to knock down all incoming missiles. Unlike the non-nuclear devices proposed in Ronald Reagan’s Strategic Defense Initiative, which had to be accurate enough to “hit a bullet with another bullet,” a nuclear system would be relatively simple, relatively affordable, would not require any technological breakthroughs, and would enjoy a good chance of working.

Unfortunately this would not only violate our ABM treaty but would trigger the same old visceral aversion to anything nuclear—even in response to a nuclear attack. As Cohen puts it, “Apparently it’s okay for the other side to destroy us with nuclear weapons but it’s fundamentally wrong for us to defend ourselves with non-destructive (to ourselves or anyone else) nuclear weapons.”

Thus the real-world chance of such a system being developed remains close to zero.

7.7 The Global Consequences of Child Abuse

The first time I heard Sam Cohen’s name was in 2000 when I happened to catch Michael Reagan’s AM hate show, or “talk show” as he prefers to call it. Just for once, he wasn’t denouncing homosexuals or the homeless. He had read a book titled *Shame*, which was Sam Cohen’s autobiography, and he seemed to think it was one of the most bizarre and remarkable memoirs he had ever seen. Not only did it expose hypocrisy, incompetence, and mendacity in government on an astonishing scale, it exposed the author himself with equal candor.

Supposedly Cohen had pursued a lifelong obsession with radiation weapons primarily as a neurotic response to a miserable childhood dominated by a demonic mother.

This was odd enough to attract my interest, so I ordered my copy of *Shame* from amazon.com. When it arrived I was in a perfect state of mind to read it, because I was reaching the end of my tenure as a senior writer on *Wired* magazine and was beginning to feel a bit of a has-been. *Shame* was the ultimate exercise in has-beenism, chronicling a career that had elevated Cohen to a position of immense influence in national policy-making before he suffered his downfall into obscurity. My modest arc through the tawdry world of journalism was trivial by comparison.

The title of the book refers to Cohen's own feelings of shame regarding his uncompromising and sometimes mean behavior toward contemporaries with whom he disagreed. He doesn't just implicate other cold warriors as having mixed motives; he goes into excruciating detail regarding the origins of his own.

By his account, his childhood was hell. When he suffered nasal congestion as a result of allergies, his mother gagged him to the point of suffocation in a misguided attempt to force him to breathe through his nose. When his allergies caused him to rub his eyes, his mother tied his hands behind his back. When he came down with a cold, he would be forced to lie under a heap of blankets to "sweat out the infection," even in midsummer when the temperature was in the 90s.

Worse was his mother's fanatical belief that infrequent bowel movements or constipation would slowly and fatally poison the body. In the interests of intestinal hygiene she compelled her child to consume a diet largely consisting of vegetable juices. Cohen recalls that this regimen induced nausea and uncontrollable diarrhea, including many episodes where the unfortunate boy literally shat in his pants during school lessons.

Like many abused children, Cohen developed fantasies of revenge. A central feature of these fantasies was his belief that if he so wished, he could emit harmful rays from his eyes capable of frying the brains of his enemies. "I went out of my way for years to avoid looking people in the eyes, especially if I were angry with them for some reason," he recalls.

To what extent did his abuse and his delusionary response affect his choice of career as a nuclear weapons designer? He responds: "I've got more than a hunch that what I've been describing has been a powerfully determining factor, if not the determining factor, in what I've done with my life." He notes the similarity between the symptoms of nausea and diarrhea that he endured, and the nausea and diarrhea that would be experienced by victims of the weapons that he designed.

When I read these strange and disturbing speculations in *Shame* they confirmed my long-standing opinion that most people who rise to positions of great influence are carrying baggage that would shock us if we knew its contents. I remember a summer day in New York City, when I was walking past the Museum of Modern Art, and I realized that the man walking toward me, with a beautiful model on his arm and two Secret Service agents behind him, was Henry Kissinger, Richard Nixon's former Secretary of State. I had no special feelings regarding Kissinger, but as I looked at his face from a few feet away, I felt an overwhelming aversion reflex. Instinctively I sensed that this

man was as twisted as a serial killer. He had the malign intensity of Charles Manson, fuelled with considerably more intelligence. (To some extent Cohen seems to share my outlook. “An absolute scoundrel,” he remarked to me once about Kissinger. “I can hardly wait to read his obit.”)

I remember also listening to a speech by renegade British politician Ken Livingstone, a one-time Member of Parliament whose disarming candor rivals even that of Sam Cohen. “Politics really does turn out to be even worse than your worst nightmares,” Livingstone concluded, after listing the corruption and deception that he dealt with on a daily basis.

It seems to me axiomatic that most primary actors on the global stage are disturbed people, because an obsessive lust for power is itself a pathology, and in a competition among thousands or millions of power seekers, only the most pathological are likely to win. The difference between them and Sam Cohen is that Cohen fell into the world of government almost by accident, and admits his neuroses no matter how bizarre they sound.

I believe that his obsessive honesty helps to explain why the New York publishing house that commissioned his autobiography turned around and rejected the manuscript, forcing him to distribute it online, which virtually guaranteed the book’s obscurity. To the well-intentioned liberals who constitute the primary population of publishing companies, Cohen’s text said, in effect, that the behavior of nuclear policy makers was delusional bordering on insane. Scientists had based their recommendations on half-baked ideas and faked data. Trillions of dollars had been squandered, and national security had been jeopardized by prima-donnas and opportunists who systematically betrayed our trust in the pursuit of their base self interest.

Cohen realized that his readers might be skeptical about all this. In his preface he wrote, “That such deadly instruments of death and destruction have been in the hands of people who really didn’t know what they were up to, never did, and still don’t—this has to be hard to swallow.”

Still, he stretched credulity even further as he insisted that the most supposedly contemptible weapon of the twentieth century, portrayed as serving the needs of capitalism by killing people while preserving real estate, actually was the most moral weapon ever invented. Finally, in a coup-de-grace that could hardly fail to repel any book editor who had perhaps expected a scholarly or academic work, Cohen explained in some detail that he developed his “most moral weapon” because on some visceral level he liked the idea of inflicting the same nightmare of vomit and diarrhea that had been inflicted upon him by his mother.

No surprise, then, that he was exiled from the East Coast literary establishment in much the same way that he had been exiled from the military establishment, and for much the same reason: He wouldn’t stop telling people things that they didn’t want to hear.

Personally I felt that his book was an immensely courageous document, for precisely the reasons that had made it almost unpublishable. I wanted very much to meet the author, and since he was in retirement I thought he might be willing to spend a little time talking to a journalist. I sent a snail-mail letter offering to do what I could to publicize, review, or promote *Shame*, although, I warned Cohen, I might be able to do nothing at all. A few days later he called to tell me he would be pleased to talk to me when I next visited Los Angeles.

7.8 The Problem of Selling Sam

At this time I was still one of the three senior writers at *Wired*, although I didn't expect my contract to be renewed. At the end of the 1990s the editorship had changed, and the magazine was heading in a more conventional direction. I have never been very interested in writing conventional journalism, and Sam Cohen obviously wasn't a conventional subject for a feature. Still, I went to visit him at my own expense with the intention of putting together a proposal for a piece about him.

Looking back, I don't remember his house very clearly. I failed to document my perceptions thoroughly because I thought I was making only a preliminary visit and would return for a longer, deeper session if my proposal resulted in a commission.

I remember Cohen in his study, as amiably irascible as I expected and had hoped he would be. I have an image of him lurking in a room of many windows, with a lot of dark varnished wood. I think of him on a La-Z-Boy recliner, scowling at CNN. He was ironic, funny, fatalistic, but still fundamentally an idealist and very much a patriot.

He told me that I was the only reader who had bothered to write to him about his book, which did not surprise me, since print-on-demand publishing means precisely what it says. It prints copies only if there's a demand, but it never creates a demand, and therefore it is unlikely to print many copies.

Nevertheless "Sam" (as he insisted that I call him) was not embittered, merely saddened by his lifetime experience in government. With some pride he showed me the Medal of Peace that he had received from the Pope in 1979. As a Jewish atheist he had little interest in the Catholic Church, but coincidence had placed him in communication with its clergy, and he was happy to take whatever recognition they chose to offer.

I stepped outside his house to photograph the medal. The house was on a large plot in Brentwood, overlooking Los Angeles—a beatific location, not far from the old O. J. Simpson estate, and within commuting distance from RAND. I tried to imagine Cohen among the theorists, questioning their commonsense and debunking their data. Really I was surprised that he had lasted there as long as he had.

I asked him how his friends would characterize him, if I talked to them. "I think they would tell you I'm a loyal friend to them, but a stupid asshole who has gone out of his way to make trouble," he told me after a moment's reflection.

After I went home and wrote my proposal to profile Sam, it was rejected with the same inevitability that Sam himself had been rejected. "Selling Sam" remains problematic at best, since his views are so unconventional, his style is so uncompromising, and his self-revelatory tendencies are so unsettling. My editor simply remarked that he "sounds wacky."

In a way I was relieved, because writing for magazine publication almost always entails compromises, and I didn't feel like compromising in this instance. I set aside my notes but continued to enjoy occasional phone calls during the months and years that followed, whenever Sam felt like haranguing me with ideas for books or opinion pieces. Phone calls seemed to be his primary recreation, and I imagined him working his way steadily through his Rolodex each month, hitting my name as he reached the P section. I felt honored to be there.

Years later, when I mentioned Sam Cohen to Mark Frauenfelder, Mark said that if I were willing to write something for his blog, he would try to sell copies of it. I said, no, let's not try to sell it; the money will be trivial, and charging a download fee will limit the audience. Let's give the text away. My reason for writing this, after all, has nothing to do with money.

7.9 *The Profits of Fear*

One benefit of the aging process—perhaps the only benefit—is that it enables historical perspective.

I was born in 1945, and can remember very clearly the nuclear hysteria of the 1950s and the 1960s. During the Cuban missile crisis I hung out with my teenage friends and discussed our options if we received a four-minute warning of nuclear attack. “I know what I would do,” a rather lovely girl told me with a sexy smile, almost making me hope that Nikita Khrushchev, would launch a pre-emptive strike. As children of the Bomb we lived in everyday fear of annihilation for more than a decade, and during that time nuclear weapons remained the news topic in the western world, like a hit album that never dropped out of the charts.

Today, global nuclear war exists as a topic of interest only in Terminator movies, and even they have lost their former appeal. The weapons are still there, our leaders can still use them, but the Union of Concerned Scientists doesn't lose much sleep worrying about them anymore.

During presidential elections throughout the Cold War, our primary, overriding concern was that a candidate should be sane enough to “have his finger on The Button.” Today, that “Button” phrase has become archaic. I can't remember when I last heard it. There was some residual concern about Ronald Reagan's qualifications to command nuclear forces (partly because of his advanced age), but I don't think the issue was mentioned at all when Bill Clinton or George W. Bush were running for office.

Over a period of decades, we gradually realized that our nuclear fears had been unwarranted. The hypothetical scenarios of game theory had entailed a lamentable ignorance of human psychology. No leader or militarist in the Soviet Union or the United States had been crazy enough to start a nuclear war, and we came to the conclusion that none ever would.

As the mood of the nation became slightly less belligerent, and a new generation insisted that we should “Give peace a chance,” statesmen pandered to pacifists by staging occasional summit conferences or arms reduction negotiations at which they embraced one another as if their prior threats and warnings had never happened. In reality of course it was the other way around: The peace process never really happened. After the very last treaty was signed, both superpowers still owned more than enough weapons to annihilate each other, because it is not in the nature of people who seek power to relinquish it voluntarily.

Sam Cohen illustrates his skepticism toward nuclear treaties by telling the story of a negotiation in which Soviet representatives did not even know how many nuclear warheads their own nation possessed, because the Politburo didn't trust them with this information. The only way the treaty could be concluded was when the United States volunteered to guess the number of Soviet warheads, using its own intelligence data, which were classified. Divulging classified information to a potentially hostile foreign nation is a

treasonous act, but that was what the United States had to do, to create a document that made mutual arms reduction look plausible. Its only real achievement was a photo op during the signing ceremony.

George Orwell, suggested in his novel *1984* that a totalitarian state would benefit most from a war which seems threatening yet is never sufficiently dangerous to defeat the nation and can be prolonged almost indefinitely. An ongoing conflict of this type provides an outlet for destructive energy and justifies material sacrifices while discouraging dissent. Whether this scenario is applicable to American government may be debatable, but certainly the Cold War satisfied all of these criteria.

Orwell imagined a regime that stopped “the pendulum of history,” but in reality any status-quo becomes unstable with time, and the threat of communism turned out to be emptier than anyone had realized. I remember a TV interview with George Bush Senior, who was slumped in his chair with his chin in his hand, not saying much, as an interviewer asked why he didn’t have a more emotional reaction to the wonderful news about the Berlin wall coming down. “I guess I’m just not an emotional kind of guy,” Bush responded.

Yet he was reacting with obvious emotion. He was visibly depressed, with good reason, since the self-destruction of the Soviet Union caused a massive reduction in his own importance. After being empowered by nuclear weapons like his predecessors, he suddenly found himself as a Commander in Chief with no enemy to fight. No one cared anymore that his finger was on The Button, because he had lost any excuse to use it.

I think Bush understood very clearly a fundamental fact of politics: Our leaders are less valuable to us at times when we feel more secure. When a president has no foreign threat from which he can claim to protect the nation, his remaining primary task is simply to create national prosperity. Sure enough, as the economy tanked near the end of Bush’s first term, there was no further use for him at all. He was terminated by uppity voters who were annoyed by the rise in unemployment and weren’t afraid anymore.

Freedom from fear made us a bit smarter—at least, smart enough to elect Bill Clinton, a feelgood guy who seemed sleazy and corrupt but was unlikely to cause much trouble. With no foreign threat to empower him, Clinton’s domestic policy initiatives failed, and he was reduced to the status of a second-rate celeb attracting National Enquirer coverage. Instead of worrying about him starting a nuclear war, we spent months wondering whether an intern had given him a blow job. This was highly beneficial to We, the People, who, freed from fear, set about generating prosperity for ourselves on an unprecedented scale.

You might think that no one could object to a booming economy, yet the way it happened was unwelcome in segments of industry, government, and even the mass media where status and prosperity had been linked with stability. Disruptive technology threatened old-school industrial titans such as AT&T, Kodak, Warner, and IBM. Old-school billionaires found themselves outranked by disrespectful upstarts, and old-school stock analysts began to look like idiots. Meanwhile the Internet empowered voters by setting up an uncontrollable conduit of information, circumventing the traditional symbiosis between media conglomerates and legislators. Some writers even contemplated a future in which further advances in technology might render government obsolete altogether.

You didn't have to be a techno geek to calculate the sum of these vectors. When people in power feel threatened by rapid change, they apply the brakes. Initially we saw some straws in the wind: Microsoft was humbled by the Justice Department, Clinton signed the Communications Decency Act, Greenspan punished investors for being exuberant to a degree that he found irrational, legislators of both parties crafted laws to throw hackers and file sharers in jail, the State Department attempted to outlaw strong encryption, and prosecutors collaborated with their friends in the traditional news media to publicize endless cases of predators, pedophiles, thieves, and con artists infesting the Internet. The message was relentless: *New technology should not be trusted*. Even Bill Joy, cofounder of Sun Microsystems, decided that some aspects of future science would be so dangerous, they should be brought under control even though they didn't exist yet.

At the time when I visited Sam Cohen, in late 2000, I didn't realize how much further the backlash would go. I certainly did not imagine a faith-driven initiative in which primitive zealots would pervert foreign policy, cripple scientific research, curtail social freedoms, and revive international adventurism to entrap the nation in a new state of perpetual Orwellian war.

Eventually I saw George Bush Junior standing on an aircraft carrier, dressed like an Air Force pilot, shouting "Bring it on!" And unlike his father, he didn't look depressed at all, even though he was ordering thousands of young soldiers into a conflict that was quite capable of killing them, while threatening to undo all the prosperity that we had created for ourselves during our freedom from fear.

Many journalists dislike Bush Junior. They complain about him toadying to the religious right, and they make fun of his syntactical blunders—but no one treats him as if he's unnecessary, and the National Enquirer doesn't go near his sex life. Also, unlike his father, Junior got himself re-elected by a significant margin, even at a time when economic growth seemed questionable.

My only question is why this fear-based charade still works, and I guess the answer is that the fear makes us stupid enough to allow it to work.

Bush Junior still plays the nuclear-drama card once in a while, when he issues warnings about nations such as North Korea, but he never even mentions Moscow as a significant threat, because no one would take it seriously. We have given up sitting around wondering what we will do if there's a four-minute warning of Armageddon. Instead, we have been induced to worry about primitive explosives in the hands of semi-literate fanatics who might kill perhaps a few thousand of us in tall buildings or a few dozen of us in public transit systems. Such numbers are utterly trivial compared with the mass annihilation that seemed plausible and imminent during the 1950s and 1960s. They are small even by comparison with highway traffic fatalities, yet the anxiety induced by the possibility of domestic terrorism has become comparable with bygone fears of communism. This makes no sense at all, but fears are seldom rational, especially when they are manipulated by elected representatives who somehow continue to command some trust and respect. In a system such as this, clearly there was no place for Sam Cohen. He invented a device that would win wars without destroying anything—and tried to sell it to military leaders whose greatest desire was to destroy as much as possible. He found a way to end conflicts quickly, with minimal drama—and offered it to political leaders who have more to gain from conflicts that create maximum

drama and drag on for years. If policy makers in Washington had wanted to curtail human suffering and the appalling wastefulness of military expenditures, the neutron bomb offered them an option. Some found it provocative, a few were willing to pursue it, but a majority chose to let it disappear into obscurity, along with the man who created it.

7.10 Epilogue: An Exercise in Futility

I'm driving a rented car north out of Boston on a stormy night in July 2005, trying to find Route 128 on my way to a conference, when my cell phone rings. It's 8:30 pm, I'm tired and hungry, and the inventor of the neutron bomb is on the line.

I pull onto the shoulder and talk to Sam for a while. He complains about his state of health, and tells me that he is no longer able to walk very easily. He reminds me that he is almost 85, and says that the future does not look good, either for himself or the nation generally. As always he is concerned about national security. He worries that our adventures in the Middle East will have long-term repercussions for which we are ill-prepared. He points out that the current adventures in Iraq would have been rendered totally unnecessary if neutron bombs had been used on Iraqi battlefields during Desert Storm. That war could have been ended decisively instead of leaving the door open for a renewed round of insanely expensive, divisive, conventional hostilities. I ask him if he feels certain that the neutron bombs which were built during the Reagan administration were really destroyed under Bush Senior. He replies that in some ways the United States is an odd nation. U. S. presidents often say things that they don't mean, but a small army of underlings works tirelessly to make sure that reality conforms with public statements. All edicts are faithfully carried out. The weapons were destroyed.

On the other hand, Sam has no doubt that China and Israel built their own neutron bombs, probably using information that was leaked to them in an attempt to stabilize their situation by assuring their defense. "If this is the case," he says, "those nations now are equipped with weapons superior to anything we have." He pauses and chuckles. "And more humane than anything we have."

He asks me if I am still planning to write about him for a web site, and I say I'm close to finishing the piece. "I hope you realize," he tells me, "that writing this will be futile. It won't change anything."

I answer that I work on the principle that if a piece of journalism reaches only one person who finds it significant, the effort is worthwhile.

"I suppose I have to agree," he says. "That's always the basis on which I operated."

Sam Cohen failed to change the world. Policies are still being initiated by analysts whose intellectual arrogance convinces them that they can know the unknowable. Data are still being manipulated to prove the unprovable, and wars are still being fought to serve the selfish interests of narcissists who profit from fear while enjoying their starring roles in the drama of international politics. Sam lost all of his battles with the establishment—yet if the experiences he has shared provide any of us with any insight at all, they will not have been wasted.

Charles Platt, August 2005.

Bibliography

Books by Sam Cohen

Tactical Nuclear Weapons: An Examination of the Issues (Crane Russak, New York, 1978).

The Neutron Bomb: Political, Technological and Military Issues (Institute for Foreign Policy Analysis, Cambridge, Massachusetts, 1978).

Checkmate on War (Editions Copernic, Paris, 1980).

The Truth About the Neutron Bomb: The Inventor of the Bomb Speaks Out (William Morrow & Company, New York, 1983).

We Can Prevent World War III (Jameson Books, Ottawa, Illinois, 1985).

Nuclear Weapons, Policies and the Test Ban Issue (Praeger, New York, 1987).

Articles by Sam Cohen

“Tactical Nuclear Weapons and U.S. Military Strategy”, *ORBIS*, Spring 1971.

“U.S. Strategic Nuclear Weapon Policy”, *Air University Review*, January-February 1975.

“SALT and the Public Law”, *National Review*, August 8, 1980.

“Whither the Neutron Bomb? A Moral Defense of Nuclear Radiation Weapons”, *Parameters*, June 1981.

“A New Nuclear Strategy”, *The New York Times Magazine*, January 24, 1982.

“Arms Limits: From Open Skies to Open ‘Spies’”, *Wall Street Journal*, June 29, 1983.

“Competitive Strategies: A Sow’s Ear From A Silk Purse?” (Part I and Part II), *Defense Science*, November & December, 1989.

“End Nuclear Testing Now”, *The Washington Post*, October 29, 1991.

“The Ultimate Terrorist Weapon”, *Spin*, January, 1995.

“The Coming Neutron Bomb Threat”, *Wall Street Journal*, May 15, 1996.

“Save the Nukes”, *National Review*, February 10, 1997.

“Needed: A Real ABM Defense”, *The New American*, October 12, 1998. (Coauthored with Conrad Schneiker.)

Other Items of Interest

Heisenberg’s War: The Secret History of the German Bomb (Thomas Powers, Alfred A. Knopf, New York, 1993).

“Secrets of Venona”, *Reader’s Digest*, September, 1996, p137–140, Ralph Kinney Bennett and Herbert Romerstein. (I was originally asked to write this article, although for some reason the editors later changed their minds. It’s still a reasonably accurate article.)

Index

A

Air Force, 8, 29, 36, 37, 38, 39, 41, 44, 45, 47, 48, 50, 51, 52, 55, 62, 65, 66, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 82, 83, 84, 86, 87, 88, 89, 98, 99, 100, 102, 103, 104, 105, 106, 107, 109, 111, 116, 118, 125, 126, 129, 132, 133, 144, 145, 146, 148, 149, 150, 154, 165, 196, 222, 235, 241, 260
Algermissen, Colonel, 146
Allen, J. Garret, 189, 192
Allen, Richard, 157, 159
Anderson, Clinton, 112, 113, 127, 128, 270
Angleton, James Jesus, 90, 91, 92
Appel, Ed, 177
Aristotle, 233
Army, 19, 21, 22, 25, 28, 41, 42, 59, 66, 70, 90, 92, 98, 99, 104, 123, 134, 140, 147, 151, 152, 153, 154, 155, 157, 163, 166, 174, 176, 179, 217, 218, 219, 222, 239, 241, 259
Army-Navy Club, 92
Arp, 3, 253, 254
Atmospheric Test Ban, 92, 93, 169, 171
Aurand, Pete, 146

B

Beilenson, Larry, 113, 114, 118, 120, 242
Bethe, Hans, 27, 28
Borge, Victor, 10
Brilliant Pebbles, 243, 244
Brown, Harold, 82, 159
Bundy, McGeorge, 150, 151
Burroughs, Abe, 101
Bush, George, 8, 85, 123, 142, 172, 174, 177, 178, 187, 194, 195, 207, 208, 219, 232, 238
Bush, George H. W., 263, 272, 278
Bush, George W., 266, 267, 277, 279
Bush, Prescott, 131, 132

C

CalTech, 96, 97, 98, 132, 268
Camm, Frank, 152, 153, 154, 155
Carroll, Lewis, 126, 128, 195
Carter, Jimmy, 82, 158, 159, 169, 188, 198, 219, 239
Catholic Bishops of America, 194
Cella, Dick, 196, 197, 198, 199, 201, 202
Cheli, Giovanni, 196, 197, 198, 199, 200, 201, 202, 203, 205
Cheney, Dick, 266
China, 53, 134, 143, 146, 169, 173, 174, 175, 177, 228, 229, 235, 271, 280
CIA, 58, 69, 89, 90, 91, 112, 113, 115, 116, 151, 153, 165, 166, 172, 177, 239, 241
Clifford, Clark, 135
Clinton, Bill, 277, 278
Cold War, 4, 7, 35, 101, 265, 266, 267, 277, 278

D

Decker, George, 140
Dillinger, John, 129, 130

DNA (biological), 16
DNA (Defense Nuclear Agency), 138, 139
Dodd, Thomas, 128, 129, 130, 131, 150, 270
Douglass, Joe, 230, 231
Dr. Strangelove, 58, 242, 264
Dulles, Allen, 89, 90
Dyson, Freeman, 271

E

Eisenhower, Dwight, 23, 58, 71, 87, 89, 98, 100, 103, 104, 106, 117, 127, 146, 147, 148, 150, 151, 156, 159, 186, 188, 246, 263
Eisenhower, John, 147
Ely, Dick, 54
England, 24, 114, 218, 235

F

FBI, 30, 84, 129, 177
Felt, Harry, 143
Feynman, Richard, 27, 28
Ford, Gerald, 127, 134, 159, 172, 218, 219
Ford, Vincent T., 104, 105, 106, 110, 132, 262
Foster, Johnnie, 89, 112, 115, 153, 154
France, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 175, 178, 179, 180, 181, 196, 218, 235
Frawley, Pat, 130, 131
Fuchs, Klaus, 24, 29

G

Garder, Michel, 167, 174
Gardner, Trev, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 142, 186, 246
Geneste, Marc, 160, 163, 167, 172, 173, 174, 175
Germany, 23, 24, 31, 99, 214, 218, 259
Giscard d'Estaing, 168
Goering, Hermann, 235, 237, 240, 244, 255, 256
Goldwater, Barry, 135
Gorbachev, Mikhail, 101, 118
Graham, Danny, 243
Graves, Al, 190, 191
Groves, Leslie, 23, 30, 186

H

Hall, Ed, 29
Hall, Ted, 28, 29, 30
Halpern, Abe, 187
Hannan, Philip, 195
Harvard University, 28, 106, 114, 115, 192, 193, 198, 199, 208
Ho Chi Minh, 146, 167, 174
Hollifield, Chet, 126, 127, 133, 134
Hoover, J. Edgar, 129, 132
Hosmer, Craig, 135, 136, 137
Hussein, Saddam, 195, 219

I

ICBM, 65, 66, 67, 68, 69, 72, 73, 80, 81, 82, 86, 102, 103, 104, 105, 106, 107, 111, 113, 116, 118, 132, 148, 186, 225, 228, 229, 233, 235, 236, 240, 242, 243, 246, 248, 249, 251

INF Treaty, 118, 119, 120

Iran-Contra scandal, 118, 120, 178

Israel, 25, 60, 137, 164, 169, 170, 177, 179, 180, 181, 182, 224, 280

J

Japan, 23, 26, 31, 32, 33, 39, 97, 155, 185, 214, 218, 248

JCAE (Joint Committee on Atomic Energy), 126, 127, 128, 135, 137

Johnson, Clarence "Kelly", 108, 109, 110

Johnson, Lyndon, 89, 93, 130, 135, 147, 148, 149, 150, 159

Joint Chiefs of Staff, 8, 70, 71, 138, 140, 141, 146, 154

Just War theory, 195, 199, 230

K

Kahn, Herman, 37, 59, 66, 67, 68, 69, 70, 92, 242, 263

Kemp, Jack, 180

Kennedy, John, 58, 59, 87, 88, 89, 100, 106, 117, 118, 119, 128, 131, 149, 150, 151, 156, 159, 188, 263, 265, 270

KGB, 117, 119, 167

Khrushchev, Nikita, 118, 119, 265, 277

Kissinger, Henry, 66, 117, 136, 155, 156, 157, 158, 198, 225, 233, 274

Kistiokowsky, George, 106, 186, 187, 188, 189, 192, 238

Korea, 70, 73, 93, 94, 95, 96, 124, 125, 146, 147, 152, 187, 209, 211, 218, 222, 223, 229, 230, 231, 248

Korean war, 53, 93, 96, 98, 124, 147, 151, 221, 230

Kramish, Arnold, 58, 59, 60, 126, 170, 171, 172

Kubrick, Stanley, 264

L

Lance missile, 152, 154

Larry, Beilenson, 113, 114, 115, 118, 120, 121, 242

Lawrence Livermore National Laboratory, 79, 82, 83, 86, 112, 127, 144, 153, 154, 159, 164, 170, 172, 173, 177, 178, 189, 241, 242, 243, 244, 270

LeMay, Curtis, 41, 51, 52, 53, 54, 55, 66, 71, 73, 87, 89, 94, 102, 105, 109, 145, 146, 148, 149, 151, 266, 269

Lenin, Vladimir, 111, 225

Livermore. *See* Lawrence Livermore National Laboratory

Livingstone, Ken, 275

Lockheed, 53, 54, 108, 109, 110

Los Alamos National Laboratory, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 42, 50, 52, 55, 58, 59, 61, 62, 73, 74, 76, 77, 78, 79, 80, 81, 82, 83, 86, 96, 97, 98, 106, 127, 142, 170, 186, 189, 217, 243, 263, 270

M

MacArthur, Douglas, 152, 211

Mack, John B., 193, 194, 208

Mahan, Alfred, 236

Manhattan Project, 23, 59

Marcum, Jess, 52, 173, 183, 184, 185, 186, 188

McKellar, Kenneth, 133

McNamara, Robert Strange, 87, 139, 140, 141, 143, 144, 149, 150, 151, 152, 153, 157, 160

Medal of Peace, 263
 Meir, Golda, 60
 Minuteman, 29, 82, 86, 236
 MIT, 19, 98, 106, 188
 Moorer, Thomas, 156
 Morse, Jack, 37, 269
 Murphy, Charlie, 87, 89, 102
 Murphy, Robert, 139, 140, 145
 MX missile, 48, 81, 108, 159

N

NATO, 75, 88, 97, 98, 99, 101, 119, 120, 125, 138, 144, 156, 157, 158, 160, 162, 163, 173, 225, 226, 248
 Navy, 25, 41, 42, 47, 53, 54, 90, 92, 99, 143, 144, 146, 147, 154, 222, 231, 249
 neutron bomb, 8, 13, 14, 16, 17, 21, 35, 38, 47, 48, 56, 60, 61, 64, 78, 79, 87, 89, 93, 94, 95, 96, 98, 99, 100, 101, 110, 112, 113, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 138, 139, 140, 141, 142, 143, 144, 145, 147, 148, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 219, 232, 238, 242, 250, 251, 252, 254, 255, 268, 269, 271, 272, 280
 neutron bomb, Chinese, 176
 neutron bomb, French, 170
 neutron bomb, Israeli, 182
 Nixon, Richard, 98, 100, 117, 134, 135, 136, 155, 156, 157, 158, 159, 174, 218, 238, 240, 242, 263
 nuclear powered bomber, 39, 109

O

O'Conner, John, 195
 Oak Ridge National Laboratory, 20
 Oppenheimer, J. Robert, 24, 30, 31, 32, 33, 34, 42, 43, 44, 45, 46, 47, 48, 49, 70, 71, 72, 76, 78, 80, 90, 96, 98, 99, 100, 101, 168, 187, 241, 268
 Orwell, George, 278

P

Paul II, John, 16, 180, 196, 198, 199, 200, 202, 203, 204, 205, 209
 Pauling, Linus, 91, 92, 93
 Platt, Charles, 1, 263, 280
 Polaris, 53
 Pollard, Jonathan, 25, 164, 177
 Pope. *See* Paul II, John
 Pope Paul VI, 263
 Price, Mel, 126, 127
 Price, Melvin, 126, 270
 Princeton University, 49, 62, 80
 Project Orion, 142

R

Radford, Arthur, 146, 156
 Ramo, Simon, 106, 107
 RAND, 35, 36, 37, 38, 39, 40, 45, 46, 47, 48, 49, 50, 51, 52, 53, 58, 59, 61, 63, 65, 66, 67, 69, 72, 73, 74, 75, 76, 77, 83, 84, 97, 100, 109, 110, 125, 126, 128, 129, 144, 145, 146, 147, 152, 154, 157, 173, 183, 184, 186, 187, 242, 263

Reagan, Michael, 273
 Reagan, Ronald, 71, 87, 106, 112, 114, 115, 118, 119, 120, 121, 130, 138, 157, 158,
 159, 163, 176, 178, 192, 194, 219, 223, 227, 228, 237, 239, 240, 242, 243,
 244, 245, 247, 263, 272, 273, 277
 reclama, 153
 Rickover, 53
 Rosenberg, Julius and Ethel, 25, 91
 Rusk, Dean, 133, 134
 Russia, 37, 42, 53, 65, 167, 189, 214, 218, 222, 227, 228, 231, 233, 234, 235

S

SAC, 41, 46, 47, 49, 50, 51, 52, 53, 55, 63, 66, 67, 68, 73, 87, 93, 94, 98, 102, 105,
 109, 125, 145, 146, 149, 241
 Safeguard ABM system, 238, 242, 245
 SALT I, 116, 119, 135, 136
 Schmidt, Francis, 209
 Schneiker, Conrad, 3, 281
 Schriever, Bennie, 72, 73, 74, 78, 79, 80, 81, 82, 83, 93, 102, 103, 104, 105, 106, 107,
 108, 109, 115, 132, 148, 149, 150, 186, 196, 197, 214, 238, 246, 259, 260,
 261, 262
 Schwartzkopf, Norman, 152, 219, 220
 SDI, 228, 235, 236, 237, 238, 239, 240, 241, 243, 244, 245, 246, 247, 249, 261
 Slotin, Louis, 190, 191, 192
 Soviet Union, 264
 SS-20, 118, 119
 Stalin, Joseph, 138, 139
 Stanford University, 189
 Star Wars, 71, 115, 227, 228, 229, 236, 237, 239, 240, 241, 242, 243, 247
 Stealth bomber, 48, 81, 108, 159, 228, 246
 Stennis, John, 131, 132, 270
 Symington, Stuart, 47, 133

T

Talleyrand-Périgord, Charles Maurice, 25
 Taylor, Maxwell, 151, 152
 Teller, Edward, 33, 36, 42, 43, 44, 45, 46, 48, 49, 80, 81, 241, 242, 243, 244, 263
Thinking the Unthinkable, 264
 Truman, Harry, 31, 47, 57, 58, 87, 133
 Trump, Donald, 185, 186
 TRW, 106

V

Vatican, 196, 198, 199, 200, 201, 202, 204, 205, 209
 Vietnam, 17, 58, 75, 124, 125, 135, 141, 142, 143, 146, 147, 149, 152, 187, 211, 218,
 219, 222, 250, 251
 Vietnam War, 142, 143, 149, 250, 251, 271, 272
 Virgie, 168, 169
 Von Neumann panel, 81
 Von Neumann report, 81, 82
 Von Neumann, John, 61, 62, 66, 67, 72, 80, 103, 106, 110, 119, 263

W

Wade, Jim, 159, 160, 162, 163, 164, 166, 169
 Walter, Norman, 210, 211, 213, 214, 215, 216, 217, 218, 219, 221
 Wang, Colonel, 174, 175, 176

Washington, George, 220, 221, 233
Watson, Hal, 99, 100, 144, 146, 152
Weddemeyer, Albert, 134
Weinberger, Caspar, 219, 243
Weyland, O. P., 93, 94
Wheelon, Bud, 115
Whitehead, Alfred North, 8
Wired, 274, 276
Woodruff, Roy, 243
World War I, 21, 72, 215, 216, 217, 255
World War II, 7, 19, 24, 25, 39, 59, 63, 66, 72, 85, 93, 98, 99, 104, 108, 132, 134, 151,
196, 209, 214, 217, 221, 230, 235, 263
Wyle, Fred, 140, 141, 143

X

X-ray laser, 243, 244

Z

Zahm, Jacques, 167